AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

ORANGE JUDD COMPANY, PUBLISHERS AND PROPRIETORS. Office, 245 BROADWAY.

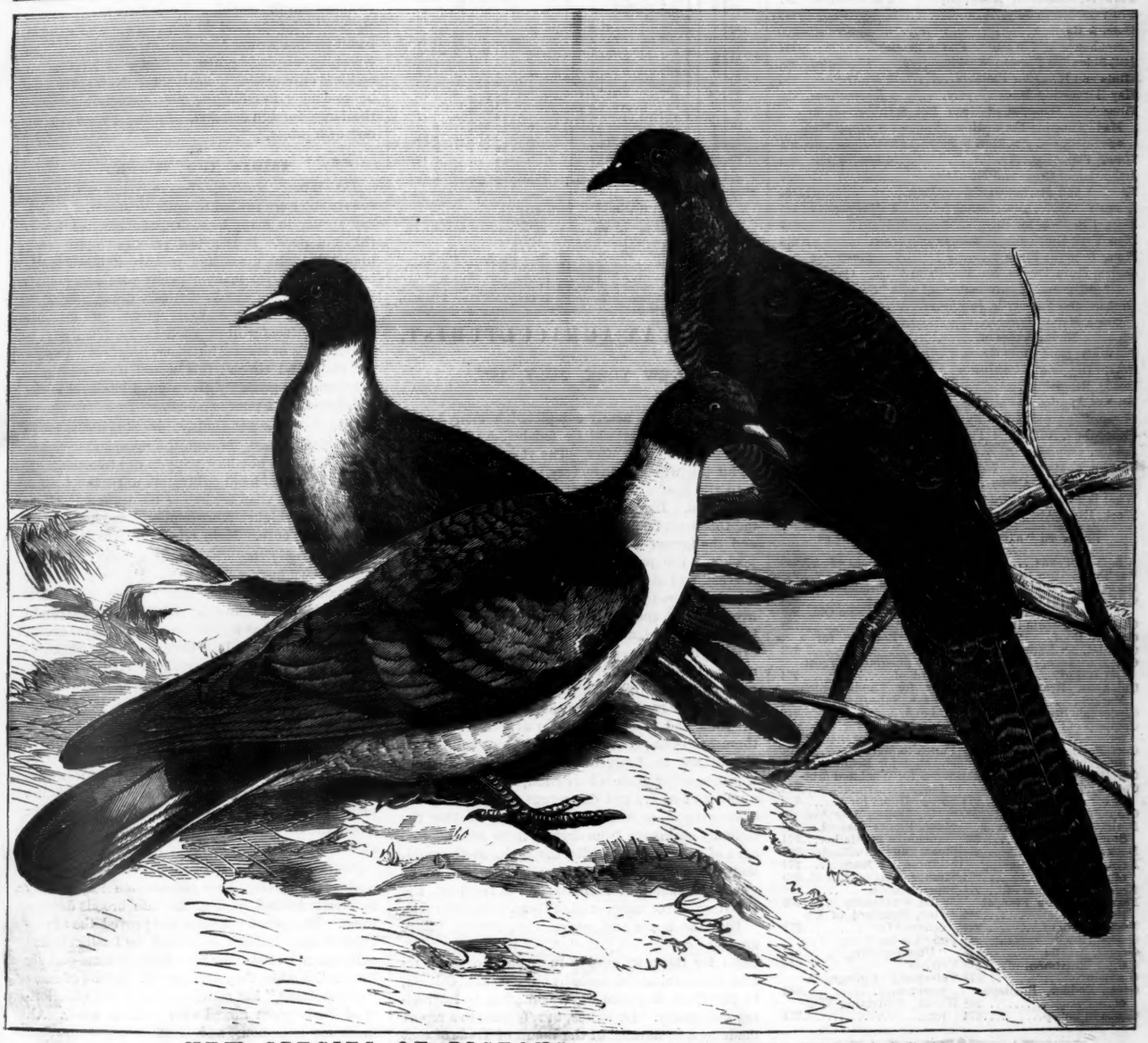
ESTABLISHED IN 1842.

Published also in German at same rates as in English.

TERMS: $1.50 PER ANNUM IN ADVANCE; 4 Copies for $5; 10 for $12; 20 or more, $1 each; 10 Cents additional must be sent with each Subscription for postage.—Single Number, 15 Cents.

Entered according to Act of Congress, in June, 1877, by the ORANGE JUDD COMPANY, at the Office of the Librarian of Congress, at Washington.

VOLUME XXXVI.—No. 7. NEW YORK, JULY, 1877. NEW SERIES—No. 306.



NEW SPECIES OF PIGEONS.— *Drawn and Engraved for the American Agriculturist.*

In 1832 an engraving was published of a new species of pigeon which was discovered in India; but the drawing being made from a dried skin, was not a satisfactory one. Very recently, live specimens were secured and imported into England for the Zoological Gardens at Regents' Park, London, from which an accurate engraving was prepared and published in the "London Field." This species, named *Columba leuconota*, has the head and the upper part of the back black, (as shown in the engraving), the lower part of the neck, lower part of back, rump, and under surface, are pure white; the upper part of the back is brownish gray; the wing coverts are light gray; the quills are brown; the tail coverts are black, and the tail is black, with a broad white band across it. Mr. Tegetmeier, the well known poultry fancier, says of it:

"To those who have paid attention to the production of varieties this pigeon is particularly interesting. It is so rare, that a single specimen, until the present year, has never been seen alive in Europe. It closely resembles several of our domesticated varieties of the *Columba livia*, and the markings could be produced by a few years careful selection by any skilled pigeon fancier. The colored head, white body, bars across the wings, peculiar coloration of the tail, may all be found in known varieties, and the combination of them could be effected without difficulty. In fact, so like is this bird to many of the known varieties, that it would be difficult to persuade many fanciers that it was a wild species, and not a domesticated variety."

The other species represented in the above engraving is very little known. It inhabits the island of Celebes in the Indian Archipelago. The size of the tail, and some other specific differences, separate it from the genus *Columba*, and give it a place in a separate one known as *Macropygia*, this particular species being *Macropygia leptogrammica*. It is a remarkably elegant bird, with beautifully banded plumage. It is an unfortunate circumstance that only a single specimen has been obtained.

Contents for July, 1877.

Among the Farmers 254
Balance of Trade 255
Bee Notes for July ..... *Illustrated*..249
Boys and Girls' Columns—Akee Fruit—Doctor's Correspondence—Surinam Toad—About the "Puzzling Puzzle"—Aunt Sue's Puzzle Box—Aunt Sue's Chats—Going to the Reservation.9 *Illustrations*..265–268
Cider Making and Presses ..... *Illustrated*..260
Compressed Meats, Manufacture of 275
Corn-Crib and shelling-Room, Rat-Proof..*Illustrated*..258
Corn, Planting in Drills 259
Cow, A Good Jersey ..... *Illustrated*..259
Drain-Pipe, To Clear a Choked ..... *Illustrated*..259
Ducks, Management of ..... 5 *Illustrations*..257
Flower Garden and Lawn in July 244
Flowers, Something About Alpine....2 *Illustrations*..261
Fruit Garden in July 244
Gate, A Rustic ..... *Illustrated*. 260
Greenhouse and Window Plants in July 244
Hill-Sides, To Prevent Washing ..... *Illustrated*..258
Hints and Helps for Farmers ..... 7 *Illustrations*..256
Hay Harvesting Machinery ..... 2 *Illustrations*..250
Household Department—Iron Pot Scrubber—Home-Made Toasting-Fork—Home Topics—Sending Postage Stamps—Eggs, How to Serve.3 *Illustrations*..264–265
House Plan ..... 4 *Illustrations*..252
Irrigation of Crops and Meadows 257
Kitchen and Market Garden in July 244
Locusts ..... 3 *Illustrations*..249
Market Reports for July 245
New York Horticultural Society 275
Notes from the Pines ..... *Illustrated* .263
Ogden Farm Papers, No. 89.—Farm-Village Question—Agricultural Department—Calf with "Scours" 251–252
Orchard and Nursery in July 243
Pig as a Manufacturer 258
Pigeons, New Species of ..... *Illustrated*..241
Potato-Bug and Paris Green 274
Potato Digger and Cultivator ..... 2 *Illustrations*..249
Roads, Repairing ..... 3 *Illustrations*..259
Science Applied to Farming 250
Sheep, Improved Kentucky ..... *Illustrated*..253
Sluice-Gate, Automatic Tide-Water...3 *Illustrations*..256
Spruce, Colorado 262
Stanchion, Method of Fastening ..... *Illustrated*..258
Talk on Farm Crops 255
What is Thorough-bred? 275
Work, Hints About, for July 242

INDEX TO "BASKET," OR SHORTER ARTICLES.

Alfalfa in Texas 248
Bee Trees, How to Find. 273
Berkshire Record 247
Cattle, Rearing and Feeding 248
Cattle, Ringworm in 274
Cement Roof 248
Chemist, An Excellent..246
Chicken Lice, How to Get Rid of 248
Chickens, Rearing for Market 248
Clydesdale Stud-Book....248
Compost of Fish and Plaster 248
Corn-Fodder, Foolish Statement About 273
Corn in Canada 274
Cow, Doings of a Nameless 274
Crops, When to Sell 246
Drain, How to Make a Stone 248
Ducks, Pekin 274
Eggs, Artificial Hatching of 274
Eggs, Preservation of 274
Farming Region, Fine, at the West 246
Fistula, Cure of 274
Gapes, How to Prevent..248
Garget, An Old 248
Garget, Treatment of....248
Gladwin 274
Green Fodder, Ensilage of 248
Grubs in Sheep 274
Horse, Blindness of 248
Horse, How to Throw...248
Humbugs, Sundry 246
Logs, Blasting 248
Mare, Breeding an Old..273
Milk, Bitter 248
Milker, Remedy for a Hard 273
Pleuro-pneumonia, Treatment of 274
Plow for Lands which Wash, Subsoil 248
Poll-evil 248
Poultry, Nests for 273
Poultry, Salt for 247
Punch to Mark 248
Sawdust for Bedding...274
Sheep for Wool and Mutton 274
Sheep, Roots for 273
Spring House, Height of.274
Stable Floors, Slatted....248
Stanchions or Stalls 274
Steam and Steam Engines247
Stiffness in a Mare 274
Stumps, Getting Rid of..249
Superfœtation 248
Swine Husbandry 246
Swine, Standard of Excellence for 273
Too "Un-knowing," Too "Un-suspecting." 247
Vetches 248
Veterinary College, American 248
Wheat, Protecting Winter 274

The Peculiarities of Jersey Cows.

—"E. D. D.," Ezota, Minn. The Jersey cows are noted for their precocious milking capacity. Having been bred so long with a view to early and copious production of milk of great richness, it is not at all strange that the Jersey heifers should show great precocity in this way. In one herd known to us, there were recently two virgin heifers giving milk, and taking their place at the pail with the cows. Another, a yearling, also known to us, was brought to milk by merely handling the udder and teats. It is nothing to be alarmed at, therefore, that a Jersey heifer should make a good-sized udder long before she is due to calve. In such a case it would be well to avoid exciting the organ, either by handling or by stimulating feed.

Calendar for July.

Day of Month.	Day of Week.	Boston, N'England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n rises.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n rises.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n rises.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	S	4 27	7 41	10 52	4 32	7 35	10 52	4 38	7 29	10 51
2	M	4 27	7 40	11 10	4 33	7 35	11 11	4 39	7 29	11 12
3	T	4 28	7 40	11 27	4 34	7 35	11 30	4 39	7 29	11 32
4	W	4 28	7 40	11 50	4 34	7 34	11 53	4 40	7 29	11 57
5	T	4 29	7 40	morn	4 35	7 34	morn	4 40	7 28	morn
6	F	4 30	7 39	0 16	4 35	7 34	0 22	4 41	7 28	0 26
7	S	4 30	7 39	0 50	4 36	7 34	0 56	4 41	7 28	1 3
8	S	4 31	7 39	1 34	4 37	7 33	1 42	4 42	7 28	1 49
9	M	4 32	7 38	2 31	4 37	7 33	2 39	4 43	7 27	2 47
10	T	4 32	7 38	sets	4 38	7 32	sets	4 43	7 27	sets.
11	W	4 33	7 37	8 37	4 39	7 32	8 32	4 44	7 26	8 27
12	T	4 34	7 37	9 10	4 39	7 32	9 6	4 45	7 26	9 2
13	F	4 35	7 36	9 36	4 40	7 31	9 33	4 45	7 26	9 32
14	S	4 36	7 36	9 59	4 41	7 30	9 58	4 46	7 25	9 58
15	S	4 36	7 35	10 21	4 41	7 30	10 22	4 47	7 25	10 23
16	M	4 37	7 34	10 44	4 42	7 29	10 47	4 48	7 24	10 49
17	T	4 38	7 34	11 9	4 43	7 29	11 12	4 48	7 23	11 16
18	W	4 39	7 33	11 37	4 44	7 28	11 42	4 49	7 23	11 47
19	T	4 40	7 32	morn	4 45	7 27	morn	4 50	7 22	morn
20	F	4 41	7 32	0 12	4 46	7 27	0 18	4 51	7 21	0 25
21	S	4 42	7 31	0 53	4 47	7 26	1 0	4 52	7 21	1 8
22	S	4 43	7 30	1 43	4 48	7 25	1 50	4 52	7 20	1 59
23	M	4 44	7 29	2 41	4 48	7 24	2 48	4 53	7 19	2 55
24	T	4 45	7 28	rises	4 49	7 23	rises	4 54	7 18	rises
25	W	4 45	7 27	7 56	4 50	7 22	7 51	4 55	7 18	7 47
26	T	4 46	7 26	8 21	4 51	7 21	8 17	4 56	7 17	8 13
27	F	4 47	7 25	8 37	4 52	7 21	8 37	4 57	7 16	8 35
28	S	4 48	7 24	8 58	4 53	7 20	8 57	4 57	7 15	8 56
29	S	4 50	7 23	9 16	4 54	7 19	9 16	4 58	7 14	9 17
30	M	4 51	7 22	9 34	4 55	7 18	9 34	4 59	7 13	9 37
31	T	4 52	7 21	9 54	4 56	7 17	9 57	5 0	7 12	9 59

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
3d Quart.	3	4 18 ev.	4 6 ev.	3 54 ev.	3 42 ev.	3 12 ev.
New M'n	10	5 22 ev.	5 10 ev.	4 58 ev.	4 46 ev.	4 16 ev.
1st Quart	17	8 28 mo.	8 16 mo.	8 4 mo	7 52 mo.	7 22 mo.
Full M'n	25	2 35 mo.	2 23 mo.	2 11 mo	1 59 mo.	1 29 mo.

AMERICAN AGRICULTURIST.

NEW YORK, JULY, 1877.

Harvest is now nearly completed in many localities, and in others will be finished by the end of the month, or soon after. The yield has been, and is, on the whole, satisfactory. How to dispose of it to the best advantage, is now the serious consideration. There is sometimes danger of expecting too much from the fluctuations of the market, and the farmer who has sold his grain and safely pocketed the proceeds as soon as possible after harvest, and at a price that gives him a good profit, may look serenely at the ups and downs of a very irregular and speculative market. It is something to have peace of mind, and this the farmer who is ever trying to reach the very top of the market, never enjoys, and he often fails of reaching the highest price. Our rule has been, and is, to sell when we are ready, getting the best prices going at the time, and taking a number of years together, there has been no reason to regret this course. It should not be forgotten that, from the moment wheat or other grain is harvested, until it is sold, a number of active and dangerous enemies are busy destroying it, or reducing its value. Besides the ordinary shrinkage from drying, there are the ravages of rats, mice, weevils, the grain moth, mold, and the danger of heating; all these are to be guarded against, or suffered, and at the best, the loss from one or more, or all of these, is considerable.

Then the hopes and preparations for the future are to be considered just now. What are the prospects for the next crop? In regard to this a recent communication, made by our consul at Odessa, to the State Department, Washington, is interesting and timely. He writes, in reference to a report made by a committee of the Board of Trade of that Russian city, on the subject of American competition in the European grain trade. The conclusions of this committee are as follows, viz: "that we, (the Russians), have changed positions with the United States. She has now our former position in the English market, and we must be satisfied with quite a secondary position. What they chiefly prove, however, is the regular progressive movement of America. We cannot therefore hope that a prosperous harvest may turn the scale in our favor, and restore us to our former position; but we must believe that the United States will yet take a higher position among the grain producers of the world. It is impossible to calculate the amount of grain which America will be able to export, and which will render her so completely the controller of the London market, that we shall be utterly unable to compete with her. The cheapness and fertility of her virgin soil, her favorable climate, the high class of her agriculture, the substitution of machinery for human labor, the spirit of enterprise, and the aptitude of the Americans for organization, are so many proofs that our fears are well founded."—This is not strange to a thinking person. We have frequently pointed out the fact that this must be the inevitable result of our improved agriculture; just as we have frequently referred to a similar condition of things in regard to our manufacturing industry. It is mind that tells on work. Intelligent labor is the most productive and profitable, and, although the American farmers are not altogether so far advanced in their line as are the American mechanics in theirs, yet they are rapidly coming to the front as the best farmers and stock producers in the world, and our farm machinery is already by far the best in existence. The natural result is, that we are controlling the markets of the world, by displacing less skillful and intelligent, and less enterprising competitors. Now there can be no danger in enlarging our production to meet the large foreign demand. By and by we can fix our own prices.

Hints for Work.

The Wheat Stubbles.—Generally the wheat and rye stubbles are seeded to grass or clover. After a dry spring in many localities, the new seeding is thin and poor. It is a bad practice to turn stock upon this light grass, and pasture it down to the bare ground; yet many "penny-wise and pound-foolish" farmers will do this very thing. Avoid it by all means. On the contrary, give a light dressing of some active fertilizer, such as Peruvian guano, or Bowker's or Mapes' fertilizer, prepared expressly for grass and clover; this would greatly advance the crop, and probably give a good bite later in the fall, instead of a poor one now.

Corn.—We keep the cultivator going until a horse can no longer pass through the rows, and we question if it would not be greatly better to use one of the many useful hand cultivators until the corn is glazed, rather than lay by the corn when it is two or three feet high. Always muzzle the horse when cultivating corn. Many raise what are known as

Catch Crops; these are turnips, peas, or buckwheat, sown between the rows of corn at the last cultivating. Sometimes this may be done with profit. If the ground is rich, and weeds would grow, there may as well be something useful grown in place of them, and we have had 500 or 600 bushels of white turnips per acre, grown in this manner, which were worth nearly as much as the corn. If such a crop is grown, it should be put in as well as possible. To sow turnips broadcast, is not so well as to sow in a row with a seed drill or by hand. An Albany seed-sower, or a garden seed-drill, may be run in the center of the row after the last working. Then, being shaded, and the ground moist, the plants grow rapidly, and need not be trodden out when the corn is cut. If peas or buckwheat are sown, two drills may be made for each corn row.

Potatoes.—Early potatoes should still be protected against the beetle. Late potatoes must necessarily be closely looked to, lest the late broods destroy them. The present season has proved the advantage of stimulating the growth by fertilizers and cultivation; and also the usefulness of hand-picking the beetles when they first appear. A trial of many "pest-poisons," has convinced us of the superiority of Paris green mixed with flour or water. All these are poisonous, and if one must use such a material, the most effective may as well be chosen.

Root Crops.—Thinning the crop should be rigorously performed. Every surplus plant should be treated as a weed, which in reality it is. Ruta-bagas may still be sown, if some active fertilizer is used to start a quick, vigorous growth. The ground for white turnips should be prepared for planting at the end of this month, or early in August. The White Globe and the "Cow's Horn," turnip, are the best for general use. Of ruta-bagas, the Purple Top Swede is one of the best, if not the best.

Hay.—Clover that has not yet been cut, has lost much of its value. No crop suffers more by late

cutting than this. Early cut grass is also better than that left to ripen its seed. Haying should be pushed as fast as possible; when the crop is ready, we do not delay on account of the weather. Standing grass will suffer from heavy rains or storms more than that which is cut.

The Proper Use of Machinery is a very important matter. On many farms it would pay better to hire the work done, than to buy all the necessary machines. Where machines cannot be hired, then they must be procured some other way; but no farmer can now afford to work without them. It is a very general fault in cutting hay, to leave a very short stubble; this is objectionable, as it greatly injures the after growth.

When Hay is Cut, it is best to cure it as fast as possible. If the weather is unfavorable, the crop should be put in large cocks as soon as it is cured, and if protected with hay-caps, may stand several days without injury. When there are a plenty of caps at hand, we would cut and cure the whole before hauling any, unless for good reasons. When the weather is damp, to cut in the afternoon, cure the next day, and cock the hay before evening, will be found a good practice. Then the cocks may be opened the next morning, and after a little sunning, may be put in. In dry weather, cut in the morning, turn over at noon, cock before night, and haul the next day. Hay may be easily over-dried.

Loading.—Long, wide, and low loads, are better than short, narrow, high ones. They are more easily loaded and hauled, and the pitcher's work is easier. A boy to drive will save time; a loader should give all his attention to making his load, and as soon as the last forkful is pitched, the wagon should move on to the next cock, not losing a moment. In harvesting, time is of the greatest value.

Wheat.—When the grain is so hard that, crushed between the finger nails it breaks into flour, and shows no sign of dough, it is in condition for cutting. When there is a heavy harvest, it is better to begin cutting a little before this, rather than leave it later. The grain to be kept for seed, should be cut the last. The stubble should be cut as low as possible. The best straw is near the root. A self-binding harvester is a valuable piece of machinery, and can be appreciated by a farmer who has been annoyed by itinerant laborers, who demand excessive pay in the hurry of harvest.

Barley.—This crop needs careful harvesting, as it is easily damaged and lessened in value by bad weather. When the weather is fair, the barley may be cut with the reaper and left on the ground until the next day, when, after having been twice turned, if free from weeds, it may be carried to the barn. To cut and bind this crop, is better than to cut in swaths and load with barley forks.

Oats.—Oats may be cut while the top of the straw is somewhat green. Else it should be cut early in the morning, left on the ground all day, and raked and bound late in the afternoon. This avoids shelling. The sheaves should be stooked as fast as bound, and the stooks should be well capped, as this crop needs to be well cured before it is housed.

Summer-Fallows.—A few farmers adhere to the old system of summer-fallowing. With our plentiful choice of cultivated crops, corn, beans, fodder corn, potatoes, and roots of different kinds, and of artificial fertilizers, there is no excuse for keeping the ground idle for one season. In our climate weeds are easily killed, and we seem to have no need to continue the practice of summer-fallowing. If it is made, however, the present month is a time when it should be thoroughly and deeply worked, or kept entirely free from weeds by harrowing.

Top-dressing Meadows with fine manure, as soon as possible after the hay has been cut, will be very effective in producing a close, thick bottom growth, which will shade the ground and prevent drying.

Fodder Crops, such as corn, millet, or Hungarian grass, may be sown the early part of this month. There is a light hay crop in many places, and one or another of these fodder crops will be very useful. It will not pay to grow a crop for fodder, unless the soil is made rich.

Horses need to be kept clean and well curried; washing the legs is advisable, and the stables should be frequently cleansed, to keep down the troublesome flies. When at work in the fields, it will ease them much from this pest to sponge the legs and flanks with water mixed with one thousandth part of carbolic acid. Grass alone will not support a working horse. Four quarts of oats, corn, and wheat-bran, ground together, with a bushel of cut hay, will be only moderately good feeding along with good pasture at night.

Milking Cows.—If milk and butter are expected, now that pastures are getting short and dry, some extra feed must be given. At least two quarts of the mixture above mentioned, should be given to each cow, along with some cut hay or green fodder. Green fodder alone is not worth much for butter, although it may increase the milk.

Sheep and Swine can care for themselves at this time, if plenty of water, fair pasture, and shade are provided. A young ram and boar of some good breed, should be secured now. Breeders can afford to sell cheaper now than a few months later.

Sundries.—A coat of paint on the homestead, barns and stables included, and the fences, adds much to the value of the farm and durability of the buildings. A very cheap and desirable fire-proof paint, which answers the purpose of the most expensive kind, is well adapted for use on the farm and in village homesteads. This is Johns' Fire-proof Asbestos Paint. It is conveniently put up in kegs ready for use. Haying machinery should be cleaned and put away as soon as done with. Give the inside of stables, poultry houses, and pig-pens, a coat of hot lime-wash, and the cellar should not be forgotten. Weeds about fences and buildings should be cut down before they seed, and carted to the compost heap. See that what needs to be done is done in time.

Notes on Orchard and Garden Work.

If the cultivator in either of these departments finds a time when he can say, "there is nothing to be done," his experience has been quite different from our own. Still, July and August are the least driving months, and those in which a vacation can be taken with less detriment than in any others. No better investment of time and money can be made than in judicious travel. By judicious travel we do not mean going off for the mere sake of going, without any object in view; an excursion within 20 miles of home may be made far more profitable than a trip half across the continent. Avoid fashionable routes and expensive "watering places;" if a mere change of scene be desired, there are numerous charming spots all over the country that are not frequented by crowds. If one would join profit with pleasure, let him visit some locality noted for its orchards, its small fruits, its market gardens, or whatever culture he is himself interested in. Intelligent cultivators, in whatever branch, are always glad to see others who are interested in the same pursuit with themselves, and by seeing what others are doing, and their methods, one gets new ideas, and if he does not learn anything by which he can profit, he will at least come back all the more contented with his own work and ways; and after all, one of the great benefits of travel is to make one satisfied with his own lot and his own home.

Orchard and Nursery.

There is scarcely a hint in last month's Notes that is not as applicable now as it was then, and some are of sufficient importance to warrant our recalling them.

Young Trees, will meet with their greatest trial this month and next, and some that made no growth early in the season will require great care to save them. As a general thing it does but little good to water trees that seem to be at a stand still; with but little foliage, there is slight demand upon the roots; a mulch, to retain the moisture of the soil, will answer much better than watering; if the surface soil be kept light and mellow by frequent stirring, it will serve as a mulch. It often helps a languishing tree to protect its trunk, or stem, from the scorching effects of the sun. This may be done by binding some moss lightly about it; by placing a handful of straight straw against the sunny side, and fastening it there with a string or wisp; or by a wooden shield, made by tacking two thin boards together to form a V trough, which is set against the tree.

Thinning.—No matter how thoroughly the first thinning was supposed to be done, the probabilities are that too much fruit is still left, and that a second thinning is needed.

Insects are rather fully discussed in last month's Notes, and he is fortunate who finds none demanding attention. Many suppose that *the curculio* attacks the fruit only just after it is set, while in fact it keeps at work nearly all summer; the jarring of the trees should be continued so long as any insects are caught; and afterwards at intervals throughout the season.—*The Slug*, mentioned last month, is usually more abundant now; we see White Hellebore, the poison used for currant worms, is recommended to destroy this. We have not tried this, as cheaper means are effective. The caterpillar, for such it really is, has a thick, adhesive covering of slime, and any powder will stick to it; the least dusting of lime kills the insect, and if fine dry earth or road dust be applied abundantly, it will adhere and make a covering that will cause the insect to let go its hold and drop from the tree. In enumerating the most troublesome insects last month, we inadvertantly omitted

The Codling Moth or "Apple-worm," which in some localities is the orchardist's worst enemy. The moth, which works in the night, deposits eggs in the blossom end of the fruit as soon as it is set; the young, caterpillar or "worm," eats its way to the center of the fruit and there lives, comes to maturity in a few weeks, leaves the apple, finds a hiding place, spins a cocoon, and in about two weeks comes out as a moth, which in turn goes to the fruit, lays more eggs, and thus a second brood is raised, these spin a cocoon, but do not appear as moths until the next spring. Much of the infested fruit falls, and if swine are not pastured in the orchard, the fruit should be picked up and fed out, or otherwise destroyed. Many insects are thus killed; many others may be caught by affording the "worms" a hiding place where they can spin. Several contrivances, patented and otherwise, have been proposed; the most effective and simplest, is a band of woolen cloth, about 5 inches wide, and long enough to go around the trunk and lap sufficiently for both ends to be fastened by a single tack. Cheap straw paper, folded to make three thicknesses, is used by some instead of cloth. The bands should be put on, half way between the ground and the branches, in the latter part of June; the first worms will usually be found under them the first week in July; the worms are to be crushed and the bands replaced. The bands should be taken off, examined, and the insects killed every 10 days all through this month and next. If this simple remedy were closely followed up by the fruit growers of a neighborhood, the insect would soon cease to be the serious pest it now is—but with this, as with most other insects, there should be a combined effort.

The Black Knot appears on the plum and some cherry trees, forming an ulcerous-looking excrescence of various sizes. Every now and then some one announces as a discovery, that this is not produced by an insect, but is a fungus; this statement has recently been made by an editor who ought to know that the knot was described as a fungus by Schweinitz about 50 years ago, and that the *American Agriculturist*, some 15 years ago, published some new observations, with engravings, showing the structure of the fungus. Whenever this appears it must be removed; if discovered early, just appearing through the bark, it may be cut out, but generally it has made such progress that the limb must be taken off. Burn all that are removed.... The chief obstacle to pear culture is

The Blight, a disease so important that it is discussed at almost every gathering of fruit growers. Many talk wisely and present their "theories," as

they call them, but none really *know* anything about it. It is a disease that only makes itself known by the death of the patient. A small limb, a large one, or the whole tree, apparently in good health one day, is dead the next. All that can be done is to cut away the dead part, to sound wood, even if it takes the whole tree and burn it. It will be disastrous in a locality for a while, and then disappear as mysteriously as it came.

Early Apples and Pears for market should be picked while still hard, they mature and decay quickly; they are best suited to a near market.

Peaches in the great peach counties of Delaware and Maryland promise a very heavy crop. In years of abundance, inferior fruit will not pay its expenses; extra care in selecting and packing is especially necessary when the crop is large.

Fruit Garden.

Most of the insects that are destructive in the orchard are to be guarded against in the fruit garden, while certain of the small fruits have their special enemies.

Strawberries.—In but few localities does the season extend into the present month. The treatment of the plants when the crop is off will depend upon the system of culture adopted. In fields where alternating beds are made, the spaces that have served for paths are manured and plowed, and the runners allowed to occupy them, and when the plants are well established—usually in September—then the old plants are plowed under. By this treatment the plants bear but one crop of fruit. In garden beds, where the plants are in separate stools, or have been allowed to fill in between the original plants to make a solid row, the mulch is removed, a dressing of fine manure forked in, and the mulch replaced; during the remainder of the season the runners are cut off as they grow, and the few strong weeds which make their appearance through the straw are pulled by hand.

Raspberries follow close upon strawberries, and as they are always biennial, the crop of next year will depend upon the care given to the plants this season. With the ordinary kind that throw up new stems from the root, or sucker, the shoots should be selected for next year's bearing canes, and all others cut off. There is nothing gained by letting the shoots grow tall; if stopped at three, or at most four feet, according to the vigor of the variety—which is done by merely pinching out the growing point or tip, with thumb and finger, the energy that would have been expended in producing a cane 6 or 8 feet high, is diverted to forming branches, and by the end of the season will be a stocky, branched bush, that will require but little support. The canes that have borne this year, will not bear again, but will be dead at the end of the season. Cultivators differ as to the proper time for removing these canes; some think that if they remain they contribute to the growth, and help strengthen the root, and do not cut them away until late in the fall. Whatever gain there may be is, in our opinion, more than offset by the injury in crowding the new shoots and preventing their proper developement, hence we cut out the old canes as soon as the fruit is off.

Black Cap and Purple Canes, do not throw up suckers, but their new canes come from the base of the old plant, and the old fruiting branches should be cut away, while the new shoots that are to bear next year are to be cared for, especially their growth in length should be stopped, and branching induced. Of course, if it is desired to propagate them, the shoots must be allowed to grow to their full length, as they are only multiplied by taking root at the tip, later in the season.

Currants for jelly should be picked as soon as they are fairly red, but for table use they are much better if allowed to get dead-ripe. If one has but a few bushes to care for, the new shoots not needed, and the pinching of too rampant growth, will anticipate much of the fall pruning.

Grapes.—In all well trained vines, the laterals—the side shoots that appear in the axils of the leaves, are kept pinched back to one leaf. When they first push, pinch off all but one leaf; after a while the bud in the axil of that leaf will push; pinch that growth back to one leaf; a third may start, but seldom more.—Pick off the large beetles, and the various caterpillars; they are seldom so numerous that they can not be hand-picked.—Watch for mildew, especially in a warm, moist time, and dust thoroughly with sulphur.—Vines may be propagated by layering the shoots of this season's growth, when they have become hard enough to handle without breaking; bend down the shoot and place two or three joints of it—the leaves being removed from these joints—in a small trench a few inches deep; the end of the shoot may be tied to a stake. It is a good plan to lay a flat stone over the buried portion, as this keeps the earth moist and thus favors the formation of roots.

Kitchen and Market Garden.

So long as the growing season lasts, there will be weeds, and so long as there are weeds there is work. Some writers insist that weeds are by no means an evil, as without them the soil would not get the needed stirring. See Note last month on the use of the rake in weed-killing. Weeds or no weeds, the

Use of the Hoe or some equivalent implement in a dry time will help the plants greatly, and those well cultivated will resist the drouth much better than the neglected ones. Many of

The Early Crops, such as peas, early cabbages, early potatoes, etc., will be off, and the land should at once be made ready for something else. In market gardens land is too valuable to lay idle, but it is not rare to see, in private gardens, a piece allowed to run to weeds after the crop is off. If not wanted to produce supplies for the family, it is better to grow something that can be fed to the cow, the pigs, or even the chickens, than weeds.

Succession Crops of several things may be sown. Beans, Beets, Carrots, Cucumbers, Sweet Corn, and later, Radishes and Spinach, are among the things that may be sown to fill cleared places, and late Cabbages and Cauliflowers, and sweet herbs may be transplanted to them from the seed bed.

Beets.—Many persons sow early beets only in spring; the Egyptian is so much better in quality than any of the late kinds, that by successive sowings, we have them all the season; besides the beet greens—the thinnings—are most acceptable when hot weather puts a stop to spinach.

Celery is to be set out from the middle to the end of the month. We have long ago given up growing it in trenches; set the dwarf kind six inches apart, in good soil, and keep cultivated during the season, until the time to earth up. Those who prefer the use of trenches, can make them 15 inches wide, and a full spade deep, taking care to have some good soil at the bottom, which should be well manured; set the celery in two rows, 8 inches apart, and the plants at 6 inches in the rows.

Corn.—In the latitude of New York, sweet corn rarely gives a crop if sown later than the first part of this month; in exceptional seasons it will mature if put in as late as the middle of the month. We usually risk a few rows of late sown, as the fodder will pay for the trouble if we fail of the ears.

Cabbages and Cauliflowers should be set out by the middle of the month; rows 3 feet apart with the plants every 2 feet apart in the row, is the usual distance where they are worked by horse. See that the plants are perfect; sometimes the growing point is injured or "blind," and such will never head; in dry weather it is well to mix up cow manure, loam, and water, and dip the roots in this before setting. Press the earth well down around the roots, to have the plant firm.

Egg Plants.—Give frequent hoeings. Potato bugs are very fond of them; the plants are usually so few that the bugs may be hand-picked; on large lots Paris green may be used. Keep the fruit from the ground by a wisp of hay, or mulch the bed.

Squashes, Melons, and Cucumbers, are all liable to attacks of insects of the same kind. The worst enemy is the "borer," which enters the vine near the root, and if not discovered early and cut out, destroys the whole plant. Covering the vine with earth for several joints next the root, is said to be a preventive. Before the plants get too large, eggs of the squash-bug may be found on the under side of the leaves and killed.

Tomatoes.—Keep tied to the trellis; cut away all superfluous growth; look out for the great green worm, it takes leaves and young fruit, and a single one will make sad work with a vine; the droppings usually show where the enemy is, catch—it can't bite or sting—and crush.

Sweet Potatoes; keep clear of weeds, and move the vines to keep them from taking root.

Turnips.—The ruta-baga sorts should be in, in this latitude, by the middle of the month. For family use the Long White French is vastly preferable to any of the larger growing kinds. When large enough, thin to six inches.

Flower Garden and Lawn.

The work here will be confined to what may be called "keeping," but it comprises a great variety of operations, most of which have been pointed out in former months, and need here but a brief reminder....The grass on the lawn should be mown when it needs it; those who make it a rule to mow regularly at stated intervals, make a mistake; in a hot, dry time, when the grass is making no growth, it is best let alone, else the roots may suffer.... Edgings must be kept neatly cut..... Shrubs and perennial plants should have the clusters cut away as soon as out of flower, unless seeds are wanted....Dahlias, gladioluses, lilies, and other plants will need stakes, which should be so placed as to show as little as possible....Bedding plants in masses, need pinching and cutting to preserve a uniform hight; in ribbon planting the effect is spoiled unless the lines are kept distinct, which may be done by proper cutting....Insects of various sorts will annoy, and one of the greatest troubles, not only on roses, but other plants, is the rose-bug, for which there is no help but catching and killing. In early morning they are inactive, and easily shaken off into a dish of water....Propagate shrubs, such as Weigelas, Forsythias, and other easily rooted things, from the just hardening new wood, under a shaded frame.

Greenhouse and Window Plants.

Plants set out of doors for the summer, are apt to suffer from neglect. It would conduce greatly to their health to prepare a place for them, a mere frame of boards as wide as the hight of the pots; put down a layer of coal-ashes on which to set the plants, and then, having put in the pots to allow each plant sufficient room, fill in between them with coal-ashes. This will not only prevent drying out so rapidly, but avoid injury to the roots by the sun falling directly upon the pots—an unsuspected cause of much damage....This plan will prevent the plants from being thrown over by the winds, otherwise some other means must be devised....Most greenhouse plants need shade in the hottest part of the day, and should be so placed as to secure this....Several insects that are not known in the greenhouse, may visit the plants when set out, and vigilance is required....Fuchsias should never be turned out into the open ground, unless in a much sheltered place; the hot suns and winds soon destroy their beauty; if taken out of the house at all, the veranda is the best place for them, and if they can be set where the flowers can be seen from below, they will be all the more effective. Keep the weeds from growing in the flower pots.

How Agriculture is Encouraged.

—In North Carolina artificial fertilizers are taxed by means of a heavy license fee exacted from dealers, from which already $13,000 has been paid into the State treasury. In Maryland, out of 67 students in the "Agricultural College," so called, eleven are studying for West Point or the Naval School, and the professor of Mathematics is paid $3,000 per year while, the professor of Agriculture receives $600. Nearly every other industry in the country is protected, while agriculture has to take care of itself, or is burdened to help other industries.

☞ SPECIAL! ☜

Six Months ON TRIAL.

OFFER OPEN Only until August 10.

A $50,000 VOYAGE

For 75 Cents.

AT LEAST 1,000,000 PEOPLE

who don't have the *American Agriculturist* **ought** to **have** it, and they *would* have it, *if* they knew what it is. . . The Publishers wish to strongly tempt them to look into its merits, and ascertain for themselves, whether or no it is worth taking regularly thereafter;

Therefore

they offer to send this Journal "on trial" from **July 1st** to the end of this year, (six months),

POSTAGE PAID,

For only 75 Cents.

This unusual offer only open to Aug. 10.

It will cost about **$50,000** to issue this Journal for six months, and every Trial Trip Subscriber will get the full benefit of all the expense, beautiful Engravings, first-class reading, etc., etc., **all** for 75 cents. (*See* "**Still Better**" *below.*)

TELL ALL YOUR NEIGHBORS.

Will **Our Friends** please tell all their friends and neighbors of this offer, and let 1,000,000 new people be invited to the feast of Good Things which we shall place before them and *all* our Readers during the coming six months.

Still Better!

Every Trial Trip Subscriber, who sends 75 cents for the *American Agriculturist* for six months, as above, may also select one of the **BEAUTIFUL CHROMOS,** offered on 3rd cover page, and it will be sent to him **free,** as there offered, (on forwarding the small sum named [25 cts.] for mounting, packing, and delivery.)

☞ **Thus, a single dollar will secure the paper post-paid for six months, and a Mounted, beautiful Chromo, delivered, —a picture which would be an ornament in any home.**

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending June 12th, 1877, and for the corresponding month last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 d's *this* m'th	231,000	486,000	1,916,100	113,000	89,000	814,000
27 d's *last* m'th	237,100	254,000	1,570,000	51,000	198,000	573,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 d's *this* m'th	283,000	991,000	5,840,000	121,000	270,000	917,000
27 d's *last* m'th	319,000	1,672,000	7,149,000	62,000	93,000	1,570,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1877	231,000	486,000	1,916,100	113,000	89,000	814,000
24 days 1876	369,000	5,417,000	1,311,000	357,000	205,000	1,067,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1877	283,000	991,000	5,840,000	121,000	270,000	917,000
24 days 1876	329,000	4,454,000	3,101,000	381,000	15,000	1,111,000

3. *Stock of grain in store at New York.*

	Wheat. bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
June 11, 1877	521,308	820,643	206,815	91,846	826,054	296,129
May 7, 1877	761,686	468,809	186,046	174,375	347,881	291,654
Apr. 10, 1877	1,782,911	1,035,654	240,423	320,331	606,689	311,032
Mar. 5, 1877	2,730,641	1,711,095	288,895	513,826	822,625	335,208
Feb. 7, 1877	3,083,819	2,302,261	374,142	671,114	956,114	388,605
Jan. 8, 1877	3,663,010	3,077,504	841,750	905,615	1,088,104	425,406
Dec. 11, 1876	3,110,283	3,385,554	218,841	873,310	1,182,322	512,041
Aug. 7, 1876	2,831,299	904,557	94,960	53,914	1,232,895	434,208
Apr. 10, 1876	3,393,074	282,140	68,429	200,381	706,262	436,943
Jan. 10, 1876	5,802,293	668,982	166,741	325,191	1,050,300	307,488

4. *Exports from New York, Jan. 1, to June 7.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas* bush.
1877	516,494	3,676,969	7,725,024	496,565	291,497	72,800	143,944
1876	868,469	10,828,697	6,134,527	280,954	8,000	98,922	376,791
1875	784,338	9,989,147	5,515,451	97,487	165	51,990	218,582
1874	957,733	15,683,546	7,021,960	443,103	100	57,585	236,916
1873	526,562	3,241,919	5,398,449	20,823	19,526	14,646	38,200

5. *Tide-water Receipts at Albany, from opening of navigation to June 1st:*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
1877..	100	363,800	1,282,300	106,200	76,000	211,100	69,500
1876..	6,500	2,499,300	606,000	182,500	81,300	777,400	129,600

CURRENT WHOLESALE PRICES.

	May 12.	June 12.
PRICE OF GOLD	107 1-4	104 7-8
FLOUR—Super to Extra State	$7 50 @ 8 75	$5 50 @ 7 35
Super to Extra Southern	7 75 @12 00	5 75 @11 00
Extra Western	7 85 @13 00	6 35 @11 50
Extra Genesee	8 75 @10 25	7 50 @ 9 50
Superfine Western	7 50 @ 8 00	5 50 @ 6 25
RYE FLOUR	5 75 @ 6 50	4 25 @ 5 25
CORN-MEAL	3 10 @ 3 95	2 65 @ 3 45
WHEAT—All kinds of White	2 00 @ 2 35	1 85 @ 2 05
All kinds of Red and Amber	1 50 @ 2 25	1 15 @ 2 15
CORN—Yellow	70 @ 71	59½@ 61¼
Mixed	68½@ 75	57½@ 60
White	67 @ 71	59 @ 61½
OATS—Western	46 @ 53	39 @ 42
State	64 @ 72	60 @ 67
RYE	95 @ 1 15	78 @ 1 00
BARLEY	60 @ 1 12½	50 @ 1 10
BARLEY MALT	65 @ 1 35	65 @ 1 35
HAY—Bale, ₱ 100 lbs	65 @ 1 00	65 @ 1 00
STRAW, ₱ 100 lbs	50 @ 80	50 @ 80
COTTON—Middlings, ₱ lb	10⅞@ 11	11⅛@ 11¼
HOPS—Crop of 1876, ₱ lb	8 @ 20	6 @ 17
" old, ₱ lb	4 @ 10	4 @ 10
FEATHERS—Live Geese, ₱ lb	40 @ 45	40 @ 45
SEED—Clover, ₱ lb	Nominal.	— @ —
Timothy, ₱ bushel	Nominal.	1 90 @ 2 00
Flax, ₱ bushel	1 55 @ 1 70	1 70 @ 1 85
SUGAR—Refi'g & Grocery ₱ lb	9¼@ 11⅝	9 @ 11¼
MOLASSES, Cuba, ₱ gal. 50 test	52 @ —	48 @ 50
New Orleans, new crop, ₱ gal	45 @ 60	48 @ 62
COFFEE—Rio (Gold)	17 @ 21	16½@ 20½
TOBACCO, Kentucky, &c., ₱ lb	4½@ 18	4½@ 18
Seed Leaf, ₱ lb	4½@ 50	4½@ 50
WOOL—Domestic Fleece, ₱ lb	28 @ 50	30 @ 50
Domestic, pulled, ₱ lb	18 @ 38	20 @ 39
California, spring clip	13 @ 30	13 @ 28
California fall clip	10 @ 21	10 @ 20
TALLOW, ₱ lb	8½@ 9	— @ 8
OIL-CAKE—₱ ton	37 00 @38 00	36 00 @ —
PORK—Mess, ₱ barrel	15 50 @15 90	14 15 @14 25
Extra Prime, ₱ barrel	12 00 @12 25	11 00 @11 50
BEEF—Plain mess	13 00 @13 50	12 00 @13 50
LARD, in trcs. & bbls, ₱ 100 lb	8 75 @10 12½	7 75 @10 00
BUTTER—State, ₱ lb	10 @ 26	12 @ 23
Western, poor to fancy, ₱ lb	9½@ 23	10 @ 23
CHEESE	5 @ 15	5 @ 12¾
BEANS—₱ bushel	1 75 @ 3 90	2 30 @ 3 85
PEAS—Canada, in bond, ₱ bu	1 15 @ 1 20	— @ 1 00
EGGS—Fresh, ₱ dozen	11¾@ 14	14 @ 16½
POULTRY—Fowls & Chickens	15 @ 20	10 @ 16
Chickens, spring, ₱ pair	85 @ 1 75	— @ —
" ₱ lb	— @ —	20 @ 25
Turkeys—₱ lb	14 @ 20	10 @ 16
Geese, ₱ pair	1 12½@ 2 50	1 12 @ 2 50
Geese, ₱ lb	9 @ 13	— @ —
Ducks, ₱ pair	70 @ 1 25	65 @ 1 00
" ₱ lb	14 @ 20	— @ —
Roosters, ₱ lb	7 @ 10	6 @ 7
Capons, ₱ lb	22 @ 26	— @ —
PIGEONS, wild, ₱ dozen	1 87½@ 2 50	1 25 @ 1 50
SQUABS, per dozen	2 75 @ 3 25	Nominal.
FLOWER, ₱ doz	2 00 @ 2 50	Nominal.
SKUPE, per doz	75 @ 2 75	Nominal.
TURNIPS ₱ bbl	50 @ 75	75 @ 1 00
CABBAGES—₱ 100	5 00 @12 00	— @ —
" ₱ bbl	— @ —	1 50 @ 3 00
ONIONS—₱ bbl	4 00 @ 5 00	— @ —
" ₱ crate	— @ —	1 00 @ 1 50
LETTUCE, ₱ bbl	2 00 @ 4 00	50 @ 1 00
CARROTS, ₱ dozen bunches	— @ —	— @ 31½
POTATOES—₱ bbl	1 50 @ 4 00	2 00 @ 3 75
" new	4 00 @ 7 50	3 00 @ 5 00
SWEET POTATOES—₱ bbl	4 00 @ 5 50	— @ —
SPINACH, ₱ bbl	25 @ 1 00	50 @ 75
TOMATOES, new Bermuda, bx	75 @ 1 00	75 @ 90
BEETS, ₱ 100 bunches	— @ —	2 50 @ 4 00
RADISHES, ₱ 100 bunches	— @ —	50 @ 87½
ASPARAGUS, ₱ doz. bunches	1 25 @ 3 00	1 00 @ 2 25
STRING BEANS, ₱ crate	1 00 @ 1 75	1 00 @ 2 50
RHUBARB, ₱ 100 bunches	1 50 @ 3 00	1 25 @ 2 00
CUCUMBERS, ₱ crate	— @ —	1 50 @ 2 25
BROOM-CORN	3½@ 8	3½@ 8½
GREEN PEAS, ₱ crate	75 @ 3 00	2 50 @ 4 00
CRANBERRIES—₱ crate	50 @ 1 75	— @ —
APPLES—₱ barrel	75 @ 3 50	1 00 @ 4 50
STRAWBERRIES, ₱ quart	15 @ 40	5 @ 15
SQUASH, ₱ bbl	1 50 @ 2 00	1 00 @ 1 50
PEANUTS, domestic, ₱ bush	85 @ 1 25	1 00 @ 1 90
PEACHES, Georgia, ₱ crate	— @ —	5 00 @ 6 00
GOOSEBERRIES, ₱ bush	— @ —	1 50 @ 2 00

Gold has been up to 107¼, and down to 104¾, closing June 12, at 104¾, as against 107¼ on May 12; 105⅞ on April 12; 104⅝ on March 12; 106 on Jan. 12; 107¼ on Dec. 12, 1876, and 112½ on the 12th of June, 1876.... Under much less favorable advices from the foreign markets, Breadstuffs have been seriously depressed in price, during the month under review, the supplies—though not heavy, in the more important instances—having been generally in excess of the requirements of buyers, whether for home use or for shipment, and holders quite eager to realize. Values receded materially, and were quite irregular toward the close, the inquiry revived, especially for Wheat and Corn, the latter rallying sharply, and the market wound up more firmly. The dealings in Corn have been largely speculative, the two calls at the Produce Exchange, now held daily, one at 11 A. M., and the other at 3.15 P. M., serving to stimulate business in this connection. The receipts of Corn from the Canal have been liberal as to amount, but the condition has been, as a rule, very unsatisfactory, most of the stock grading under even steamer quality. Further important purchases of Feed Barley have been made here and at Chicago, for shipment to England, at, however, low figures. . .Cotton has been more active and quoted higher....Wool has been in more request, for manufacturing purposes, but at irregular prices....Tobacco, Hops, Hay, Naval Stores, and Petroleum, have been moderately dealt in, but at variable rates....Rice has been more sought after and quoted firmer....Grass Seeds have been quiet and somewhat nominal....Groceries have been in less request, and quoted cheaper....Ocean freights have shown less activity, and at the close, decidedly less firmness....Grain rates by steam to Liverpool closed on the 12th of June at 5*d.*, (having been during the month as low as 4*d.*, and as high as 7*d.*); to Glasgow at 6*d.*; to London at 6¼*d.*; to Liverpool, by sail, 4*d.*; London, by sail, 5¼*d.*, per bushel. Provisions by steam to Liverpool, 40*s.* @ 55*s.* per ton; Cotton by sail and steam at ¼*d.* ₱ lb. Grain, by sail, for Cork and orders, at 5*s.* @ 5*s.* 6*d.* per quarter.

New York Live-Stock Markets.

RECEIPTS.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
May 21	9,721	34	4,590	19,149	21,925
May 28	9,434	70	4,277	23,700	20,754
June 4	10,451	57	5,914	20,402	18,868
June 11	9,376	69	4,583	19,822	19,901
Total for 4 Weeks	38,982	260	19,334	82,673	81,446
do. *for prev. 5 Weeks*	55,057	331	21,545	90,013	138,787
	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	9,745	65	4833	20,668	20,361
do. do. *last Month*	13,761	66	4,300	18,062	21,777
do. do. *prev's Month.*	10,019	66	1,577	21,225	20,711

Beeves.—The opening of the business for the past month was unfortunately affected by the heated term, and the flow of prices and high spirits of the sellers were alike checked with the setting in of a decided ebb. Prices fell off fully ½c. per lb. the first week, and in the gradual recovery may be seen the effect of the export of 7,461 head from this city to Europe. What would be the effect were it not for this outlet of the surplus beef it is easy to imagine. The market gradually recovered tone on the whole, fluctuating meanwhile, and closed very lively, with some extra cattle touching the extreme price of 13¼c. Texans, which, by the by, are rapidly improving in quality and reputation, brought 11@11¼c. per lb. for 56@57 lbs. per cwt., an estimate higher than was really merited; Natives of 56@58 lbs. per cwt. reached 12¼c., and extra of 59 per cwt. up to 13@13¼c. per lb. Estimates in fact were just what buyers could exact from dealers in a "booming" market. The gradual increase in prices promises to lessen the export business, temporarily until the "steam blows off," when this safety valve will again be shut down on to the market.

The prices for the past four weeks were as follows:

WEEK ENDING	*Range.*	*Large Sales.*	*Aver.*
May 21	9¼@12¼c.	10¾@11¾c.	11 c.
May 28	10 @12½c.	11 @11¾c.	11¼c.
June 4	9¼@12½c.	11 @12 c.	11¾c.
June 11	9¼@13¾c.	11 @12½c.	11¾c.

Cows.—A light business has been done in cows; good cows being in demand, and only poor ones in supply. The closing of the swill-milk dairies has stopped the sale of poor milkers. Good cows sold for $60@$65 for extra; poor ones have been very slow of sale at $35 @$40 each....**Calves.**—The heated term wrought mischief with the calves; poor bobs and hog-dressed being spoiled by hundreds. Live calves of good quality are salable at 7c. ₱ lb live weight; buttermilk calves sold for 3¾c.@4¼c., and thin veals at 5c.@5½c....**Sheep.**—The shipment of sheep and mutton to Europe helps the market greatly. A shipment of 400 Ohio and Kentucky wethers, averaging in lots 132 to 161½ lbs., sold at 7c. ₱ lb live weight. Other prime sheep sold through the month at from 6c.@6¼c. ₱ lb, and ordinary at 4¼c.@5¼c. ₱ lb live weight. Choice lambs brought 10c.@10¼c. ₱ lb live weight, and poor to good 7¼c.@9c. ₱ lb....**Swine.** The market has fallen off considerably the past month, and closes without recovery. All the "hog products" have kept company. City dressed hogs closed at 6¼c.@ 6¾c.; live Ohio hogs of 200 lbs. for $5.80@$5.85 ₱ 100 lbs.

Prices of Feed.

Bran, per ton	$18.00@$20.00
Middlings, per ton	19.00@ 21.00
Ground Feed, per ton	15.00@ 21.00
Linseed-oil-cake, western, per ton	44.00@ 47.00
Cotton-seed-cake, per ton	25.50@ 40.00
Chandler's Scraps, per lb	3@ 4

Prices of Fertilizers.

No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ₱ ton	$56.50
do. do. Lobos, do. do. do	47.50
do. do. guaranteed, ₱ ton, cargo C	56.09
do do. rectified, per ton, 10 p. c.	66.50
Mapes' Complete Manure (Ville formula) p. 1,000 lbs	26.14
do. Wheat and Grass Manure, ₱ 1,000 lbs.	27.00
do. Tobacco do. do.	24.67
do. Turnip do. do.	19.36
do. Bone, strictly pure, fine ...per ton.	40.00
do. do. do. medium do.	37.00
do. do. do. coarse do.	35.00
" Dissolved Bone, 15 per cent. do	40.00
Quinnipiac Fertilizer Co's. Phosphate, per ton.	40.00
" " Dry g'd Fish Guano, ton 9 p. c. am'a	42.00
" " Pine Island Guano, per ton.	42.00
Stockbridge Corn Manure, (Boston) per acre	22.00
" Potato do do do	12.00
" Tobacco do do do	60.00
Bowker's Hill and Drill Fertilizer, per ton	45.00
German Potash Salts, (25@35 per cent), per ton.	20.00
Gypsum, Nova Scotia, ground, per ton	7.00@8.00
Nitrate of Potash (95 per cent.), per lb	9½c.
Sulphate of Potash (actual potash 44 per cent) per lb	4 c.
do. do. (actual potash 27½ per cent) per lb	2 c.
German Potash Salts (actual potash 12 to 15 p. c. p. ton	$20.00
Muriate of Potash (actual potash 50 per cent), per lb	2½c.
Nitrate of Soda, per lb	4½c.@ 5 c.
Sulphate of Ammonia (25 per cent.), per lb	4½c.@ 4½c
Dried Blood or Dried Meat (ammonia 14 per cent) p. ton	$50

containing a great variety of Items, inc'uding many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.

Publishers' Notices, Terms, etc.—The Annual Subscription Rates of the *American Agriculturist*, postage prepaid by the Publishers, are: One Copy, $1.60 a year; *Two* Copies, $3; *Three* Copies, $4.20 ($1.40 each); *Four* Copies, $5.20 ($1.30 each); *Five* to *Nine* Copies, $1.25 each; *Ten* to *Nineteen* Copies, $1.20 each; *Twenty* Copies and upwards, $1.10 each; Single Numbers, 15 cents, post-paid.—The above terms are for the United States and Territories, and British America. To the above add 14 cents extra per year for papers delivered by mail in N. Y. City, and for copies sent outside of the United States and British America, *except* to Africa, Brazil, British Honduras, the East Indies, and Mexico. For the last named five countries the extra charge is 58 cents per year, to cover extra postage; Single Numbers, 17 cents, post-paid.....**Remittances,** payable to Order of Orange Judd Company, may be sent in form of Checks or Drafts on N. Y. City Banks or Bankers or P. O. Money Orders; or in Registered Letters, such letters to have the money enclosed in the presence of the Postmaster, and his receipt taken for it, and the postage and registering to be put on in stamps. Money remitted in any one of the above three methods is safe against loss..**Bound Volumes** from Vol. 16 to 35 inclusive, supplied at $2 each, or $2.50 if to be sent by mail. Sets of numbers sent to the office will be bound in our regular style for 75 cents (50 cents extra if to be returned by mail). Missing numbers for such volumes supplied at 12 cents each.—**Any Numbers** of the paper issued for 20 years past, sent post paid for 15 cents each.... **Clubs** of Subscribers can be increased at any time, at the club rates, if new members begin at same date as original club.

Personal.—One of the Editors, to whom a considerable share of the editorial correspondence falls, has been detained from the office by a somewhat protracted illness. Those correspondents who feel that their favors have been neglected or overlooked, will please accept this as an explanation and apology.

The Berkshire Record.—"A. B. C.," Mantua, Ohio. There is but one Berkshire Swine Association, and but one Berkshire Record. As the swine are entered in the Record simply from the statement of their owners, it is no guarantee of correctness, any further than whatever confidence may be placed in the word of the owners of the swine. The Record will of course prevent some possible misstatements.

Swine Husbandry.—A Practical Manual for the Breeding, Rearing, and Management of Swine, and the Prevention and Treatment of their Diseases. By F. D. Coburn, a Western Practical Farmer and Breeder. Illustrated. New York. Orange Judd Company.—In the great corn-growing States of the West, the conversion of that product into the compact and portable form of pork, is a leading industry, and the problem, "How much pork can be made from a bushel of corn?" or "How much pork is represented by an acre of corn?" is of the greatest importance to every farmer. Our agricultural literature has heretofore been deficient in works giving an account of the wholesale process of pork-making, as practised in the great corn-producing States, and the present book, by one practically engaged in the pursuit, will be generally welcomed. The first portion of the work discusses the merits of the leading breeds, and while indicating his own preference for the Berkshire, the author gives a full presentation of the claims made for other breeds. The portion devoted to breeding is in accordance with the views of the best breeders, and the chapters devoted to feeding and fattening present the subject in a most thorough manner. A large share of the work is devoted to the "Diseases of Swine," and is probably the part which will be consulted by many with the greatest interest. But few, who have not given special attention to the subject, are aware of the immense losses the country has annually sustained for several years, through the wholesale mortality among swine in several Western States, from diseases which are alike in being rapidly fatal, and are popularly classed under the term "Hog Cholera." This subject is most thoroughly discussed, and its causes shown to be avoidable. In this part of the volume, as in other parts, the author does not content himself by giving merely his own experience and views, but draws freely from the writings of others, to whom he, of course, gives full credit. The work throughout bears the impress of a desire to exhibit the present state of knowledge on the subject, rather than to put forth himself as an authority. While written from a Western breeder's standpoint, the usefulness of the book is by no means limited to any section of the country, as sound principles are of universal application. As we shall have occasion to notice some special features of the work hereafter, it is sufficient at present to announce it as the fullest and freshest compendium of information relating to Swine Breeding yet offered, and a most important contribution to our agricultural literature. It is now in press and nearly ready. Price, post-paid, $1.75.

Study the Advertising Columns.—We often take up a daily or weekly newspaper and carefully read all the Advertisements through, and never do this without getting some useful information. One learns what business is being done, and how it is done—what is for sale, and by whom. *Our* business columns are of especial value, because of the care taken to exclude all advertisements from parties not believed to be honest. We mean to advertise for no parties who have not both the ability and intention to do all they promise. In order to please advertisers, we repeat the request that those sending orders, or for circulars, etc., to our patrons, will mention *where* the advertisements were seen. We also like to have advertisers thus get some idea of the large number of intelligent and enterprising people they find among our readers.

When to Sell Crops, Gold, and Stocks.—The query is constantly coming to the editors of the *American Agriculturist:* "Would you advise us to sell our Wheat, Corn, Wool, etc., *now*, or to wait for a rise in price. It is exceedingly difficult to advise. Take an illustration.—This office receives, during every year, considerable sums for subscriptions, in the form of gold or drafts payable in gold, as from Australia and New Zealand, the African Coast, etc., and the invariable rule is to sell such remittances immediately. [Some railroad stock received by the writer in exchange for real estate was in like manner at once sold for 35.—They are now worth only 1 or 2 per cent.] The idea acted upon is, that the publishers are not speculators in gold or stocks; that there is a large number of men constantly engaged in such speculation who give their whole attention to this subject, watching every feature and studying every prospect of the market, and that if gold or stocks were certain to go higher these men would buy up all there is to sell. *They* know better than outsiders as to the real present worth of such articles. Sometimes after a rise in price the temptation is to say: "There now, if we had only held on we could have got more;" but it just as often happens that one can say: "Was it not lucky we sold just when we did, for see what a fall there is."—Does not the above rule apply equally well to selling or holding farm products for a rise? They may go higher, and then again they may be lower. Is it worth while to speculate? Do not the sharp, shrewd dealers know best what the probabilities are? If there is a fair prospect of an advance, will not they pay higher now? We never advise farmers *when* to sell their produce. As stated above, the safe rule seems to *us* to be to sell whenever ready to go to the market, or one most needs the money, and be satisfied whichever way prices turn afterwards—as stated under our General Notes on Work for the Month.

An Excellent Chemist Available.—To any Agricultural College or Agricultural Experiment Station, or other enterprise needing the services of a first-rate Analytical Chemist, we would highly commend Herr WARNECKE, of Middletown, Conn. Mr. Warnecke received a thorough preparation for Agricultural and technical Chemistry, in Germany, and was very warmly recommended by leading men there. He studied at the Universities of Greifswald and Leipsic, and was for 2½ years Assistant in the Laboratory of the Agricultural-physiological Institute of the University of Leipsic, where he worked with Stohmann, one of the first authorities in technical and agricultural chemistry, who recommends Mr. Warnecke highly. Mr. W. came to this country by invitation, to execute some special investigations at the Conn. Agr. Experiment Station during the year ending with this month, which he has done efficiently and to the entire satisfaction of those who called him. He has acquired considerable knowledge of our language and customs, likes the country, and will be pleased to become a permanent resident. We hope his services will be retained here; he will be a valuable acquisition to any Institution or other parties engaging him. Address G. WARNECKE, Middletown, Conn.

Sundry Humbugs.

The long-time readers of the Humbug Column, will recollect that from the close of the war, up to within three or four years ago, a large amount of space was given to the exposure of the dealers in "queer," the technical name among swindlers and police, and other officers, for counterfeit money. So thoroughly were the plans of these rascals laid bare, combined with the fact that many were arrested, that the business appears to have been no longer remunerative, and so nearly extinct, that of late years it has been only now and then that we have had occasion to refer to the matter at all. The droll thing about the whole affair is, that there was

NO COUNTERFEIT MONEY

concerned in the transaction. Circulars, usually lithographed, to induce the ignorant to think they were written, claimed that the sender was the most expert engraver in the country, that he formerly worked for the Government, that he had engraved plates from which he could print bills that the Treasury officers themselves could not detect; he wished to extend his business, and "having heard" that the one receiving the circular could be trusted, he proposed to sell his "goods" very cheap. Some made dreadful threats of what would be done if the recipient of the circular violated the confidence thus placed in him; then followed minute directions about meeting at a certain hotel, and all that. Out of thousands of circulars, some would fall into the hands of persons just unprincipled enough to catch at the chance, and quite ready to pass counterfeit money, if they could do so and not be detected, and in the aggregate quite a number of would-be buyers of "queer," made appointments at obscure hotels, according to directions, and came at the appointed day. They paid over their good money, and received a parcel in exchange; the buyer was advised to leave the city as quickly as possible, before the "cops" (police) got after him, etc. When the buyer opened his parcel, he found it counterfeit indeed! A pile of old newspapers, cut to the size of bills, or a box filled with sawdust, or stuff of equal value. Sometimes a victim was disposed to follow up the matter, but the rogue who had done him was equal to the occasion, informing him coolly that

HE DARE NOT "SQUEAL,"

as he had shown his desire to procure counterfeit money for circulation, a transaction the courts would not recognize. First and last, hundreds of green-horns who came to the city, prepared to become scoundrels, went home poorer, if not wiser men. This is the general outline of the business, the details of which were worked out with many variations. Since it appeared to be effectually squelched, there has been every now and then a short-lived revival. Some chaps are trying the game just now; they are an improvement on the earlier lot, in as much as their circular is short, straight, and to the point, there is no attempt at concealment, as they wish people to believe that they have counterfeit money, and say so. We give one of these recent circulars in full.

NEW YORK, 1877. *Dear Sir:*—One of our Agents has sent us word that you are a proper man to handle our Stuff, (Counterfeit Money), and if that is so, you had better come on at once and make a Personal examination. We have the best Stuff in the market. Our prices are as follows, $100, any kind you wish, for $10.00; $500 for $30.00; $1,000 for $50.00. If you can not come we will send the Stuff by mail or express, on receipt of price, but would rather you would come on and see it before engaging in the business. We do not answer Postal Cards. If you send money for the Stuff, send large Bills neatly folded in a plain envelope, do not send it by Express, Registered Letter, or P. O. Order, but in a plain envelope.

To those who wish to see Samples, we will send by mail postpaid, $30.00 of our Stuff on receipt of $5.00 in a plain envelope. Yours in silence, T. LEE, Room 5, 31 Park Row, New York City.

There may be persons who think that T. Lee will be found at the place designated, ready to sell his "Stuff" as if it were soap or mackerel, in open market. Mr. Lee

and his tribe are quite too sharp for that. The final clause offering, as a sample, $30 worth of the "best stuff in the market," for the sum of $5, fully accounts for not only the "milk in the cocoanut," but for the cocoanut itself.

CHEAP JEWELRY.

We have numerous circulars of dealers in cheap jewelry sent us, and are asked if the articles are as represented, or if the dealers are responsible. We find that as a general thing, the articles offered are claimed to be of some particular metal or compound which "looks as well as gold," which we do not doubt, but when it is stated that it will "wear as well as gold," we look upon that assertion as a humbug. We have no sympathy whatever with the taste that leads to a display of cheap jewelry, and have no advice to give as to the quality of this or that particular kind. Probably one is as good—or as bad—as another. They set out with the claim that they are imitations and will no doubt sustain it. If one gets a finger ring for 60 cents, a set of shirt studs for 75 cents, or a "lady's set of pin and ear drops" for $1.25—the wearer may be sure the *intrinsic* value of the articles is not more than one-third of those prices. For one to decorate his or her person with that which pretends to be that which it is not, shows at least a want of consideration of the fitness of things. There is danger that a pretentious show, and want of sincerity in these trivial matters, may be taken as an index to the wearer's character. As they are not necessary to comfort, and to the eyes of judicious persons are far from ornamental, good sense as well as good taste would suggest omitting them altogether....The most unsatisfactory cases are those we feel sure are fraudulent, but have not *proof* of the fact. A striking illustration of this is the

"MONITOR LAMP MANUFACTURING CO.,"

having its head quarters at Cincinnati. Its circulars, offering agencies, were very attractive to the unemployed, and they appear to have been scattered far and wide. At one time they came to us by dozens, the senders asking advice about investing. We could get no positive information from Cincinnati, except that "the concern appeared to be doing a large business." Our chief ground of suspicion was the very elaborate manner in which their "agreements" were drawn up, with the obligations all on one side. Of course money was to be advanced for an out-fit, but the sum required was not large. At last complaints came that money was sent and no returns received; than we learned from the Cincinnati papers that the Chief of Police of that city had received "thousands" of complaints of the failure of the "Monitor Co." to reply to those who have sent them money. Whether the "Co." survived this exposure or not we have not learned....There are other ways of

HUMBUGGING FARMERS,

besides selling seeds of well known plants under new names. The chaps with the recipe to prevent the borer and other insects from injuring trees are around again in some of the Western States. They charge $5 for the recipe, and at the risk of injuring their business, we tell what it is, for the purpose of showing the absurdity of the thing. A pint of turpentine is to be mixed with a gallon of soft soap; this is to be rubbed well upon the body of the tree: "it penetrates into the sap of the tree and destroys all the insects that subsist upon the sap or on the leaves!" But that is not all: "Five or six days after the first application, pour as close to the tree as possible, about half a gallon of boiling hot lye, in which has been dissolved a half pint of common salt and one gill of turpentine."—The venders of this recipe claim that it is patented. We have seen several of these tree-doctoring recipes, and they are all either useless or injurious, and it is safe to avoid the whole lot....Elias is a name not unknown to fame, but recently

MR. ELIAS CAME TO GRIEF.

He fitted up a place on Broadway with handsome show-cases, in which was a display of silver ware and gold ware and other wares, each and all duly ticketed. Hand-bills informed the public that for the paltry sum of $1—it could have "the choice of $1,000,000 worth of goods." This is the way the "choice" was chosen. Mr. Public walked up to a ticket office, in which was a small hole, passed in his $1, in return for which some invisible hand passed out a sealed envelope; said envelope contained a ticket, which ticket had on it a number, and entitled the holder to that particular article of the "$1,000,000 worth of goods," that bore a number corresponding to that on the ticket. Somehow the "choice" did not seem to fall much on the large articles, but the luck run mainly on things worth less than a dollar. But strangely enough the Police Captain of the Precinct looked upon Mr. Elias's enterprize as a game of chance, and he was brought before a magistrate for violation of the Lottery Law, and quite as strangely, the magistrate would not take Mr. Elias' word for it, that it was a perfectly legitimate business, but held him to bail to answer for a violation of the law. The law is gradually making itself felt among the lottery and gambling fraternity. Only a week or so ago one of the heavy lottery concerns undertook to contest the right of the Government to refuse to carry lottery circulars in the mails, but Judge Blatchford, by his decision that the law is constitutional, knocked that prop from under their shaky edifice. It takes time, but they will have to yield at last....The old style of

MOCK AUCTIONS,

has pretty much disappeared, but there is a form of mock auction against which it is well for strangers visiting New York to be on their guard. In several of the fashionable streets, occupied only by private residences, such as 16th, 23rd, and 25th streets, are houses, to all appearance, residences, but really are auction shops, in which "a family is breaking up house-keeping," or from which "the family is about leaving for Europe," every day. The house is furnished and all has the appearance to a stranger of a legitimate sale of the effects of a private establishment. There is a set of men and women who act as cappers, or stool pigeons, and though more refined, the whole thing is run in the regular Peter Funk style. The furniture is made expressly for these sales, showy externally, but really worthless for wear; thus the sofas, with gay upholstery, are stuffed with shavings and all sorts of shams are practiced. These sales are especially dangerous to those who come from abroad with the intention of purchasing furniture; they have perhaps examined and priced similar articles at the stores, and thinking that they are getting the same articles at half the regular prices, purchase freely and are cheated hugely. Not long ago a gentleman from Pennsylvania was victimized for some $1,600, and another from Charleston, S. C., was heavily taken in....Chromos have been put to a good many uses, first and last, but here is the

VERY LATEST DODGE IN CHROMOS.

A quack medicine concern—we will not give it the benefit of an advertisement, so withhold the name—sends a circular to the Postmasters, which says: "Will you oblige us by sending on this sheet, a list of 20, or more, Live, Active Men, [*Dead* active ones won't answer], such as school teachers, farmers, peddlers, and others who might take an agency, and for your kindness in our behalf, we will send you by return mail, pre-paid, our Four Handsome Chromos, etc."—Yet many good people wonder how their names become known to the senders of all sorts of circulars. This is but one of the many devices for procuring names....There is a chap careering through New England, calling himself the "Consulting Physician of

THE NEW YORK COLLEGE OF HEALTH,"

and a correspondent sends us one of the "Doctor's" show bills, asking us if there is any such institution as he professes to represent. "Such an institution?" Why isn't there a picture of it—what more would you have? To be sure there is no sign on the building, nor is there anywhere any mention made of the street or avenue on which this building is located. But what of that, such matters are trivial beside the great fact that Doctor B. is the "Consulting Physician," and has copy-righted his show-bill. Among the regularly organized colleges, having a legal title, there is none called N. Y. College of Health, but as one or two men have a way of calling themselves a "University," and one man has made an "Institute" and a whole Board of Trustees, we can't say but there may be some such one-horse concern bearing the above name. We know of no such building... One of the curiosities of this kind of medical literature, is the circular of the "Seven Barks" man, in which

THE PLAIN LANGUAGE OF THE FRIENDS

is made to serve in a business document in a most amusing manner. It is rather droll that the whole story of "Seven Barks," its remarkable properties, wonderful cures, and all the rest of it, should be in ordinary language, while it is only in his confidential circular that the proprietor "thees and thous." Here he does it strong, in fact, we think he over-does it, and this, with a misquotation of Scripture, makes us rather suspect the writer's orthodoxy. Still, as a business appeal, it is altogether a curiosity. What can be more neatly put than this? a real "Friend" could hardly do it more shrewdly. "That I may be assured of thy honesty, let one of thy town officers or public men sign the certificate at the close of this sheet. This will show me in what esteem thou art held by thy fellow men."—He must be a hardened wretch who would take advantage of the Seven Barks man after this appeal. "Thee may be aware of the fact that the Society of Friends (commonly called Quakers) do not approve of going to law; therefore I shall not sue thee—even should thee not pay for what medicines thou mayest sell. But, if thee has any doubt in thine own mind about thine ability to do right by me, please do not accept the agency,"—and we say "Don't."

THE HISTORY OF THE DISCOVERY

of the various wonderful medicines that are offered from time to time, is in itself a curious study. It seems to be accepted that there must be something marvellous connected with either the discovery or the preparation of the stuff. The Indian dodge, though well known, is still far from being used up, and is yet to serve for wonderful cures in the future. Picking up on the sea-shore a bottle which contains the recipe, saved to the world in this manner by some thoughtful benefactor on a sinking ship, is not so popular as it was. The good old granny of the Mother Noble style, has done fair service, and now and then, as in the case of "Seven Barks," we have a good old daddy. "Seven Barks," or *Hydrangea arborescens*, from which the medicine is said to be made, is a common native shrub, and there is no chance of lugging in a "big Injun," or doing the sensational about its discovery. The medicine would never run on its "native graces," but "foreign airs" must somehow be added. In this case the "emotional" is worked up on its preparation, so the proprietor crossed the ocean; he takes us up the Moselle to Wisbaden, where he sought out Franz Ganswein—a wonderful man, indeed, for he had a way of squeezing five different sorts of stuff out of one poor shrub. Of course the American learned how to squeeze too—here was the needed foreign element, the spice of adventure, the bit of the marvellous. The story, with a portrait of old Ganswein, rather mussy as to neck-cloth, and powerful as to eye-glass, gives the needed finish, and lifts it from the level of the common place, to almost the eminent position occupied by our ever esteemed Eddie Eastman. A most amusing book could be made of the alleged histories of the various medicines—but what a sad comment on human credulity would it be!

Steam and the Steam Engine.—Now that steam engines are coming into such general use in workshops, on farms, and for irrigation in gardens and fields, it is of the greatest importance that those who use steam should have a knowledge of its character and of its proper and safe management, as well as of the principles of construction of steam-boilers and engines. This knowledge may be gained from the study of two very valuable little works, published by G. P. Putnam's Sons, New York. These are entitled "Steam and the Steam Engine," of Putnam's Elementary Series of Science and Art, price 75 cents, and a more advanced and comprehensive work, "Steam and the Steam Engine," of the Advanced Series of Science and Art, price $1.50. These two books should be well studied by every one who uses steam, or who proposes to do so. The books can be supplied post-paid by Orange Judd Co., 245 Broadway, N. Y.

Salt for Poultry.—A. McLaren, Meadville, Pa., writes: "I would like very much to have some of your correspondents give the reason why poultry should be excluded from the great essential, salt. In my early experience, this was the precept laid down by my mother, and it is practised by nearly every one to-day. I am a very extensive breeder of nearly all the fine bred varieties of fowls, and have reared this season about 500 young stock. I find that my stock thrive better, are heartier, and appear better in every way, after their warm feed of meal and bran, every morning, well seasoned with salt, and in cold weather with a little red pepper added. I look upon these two condiments as the ounce of prevention in the case of disease, and would ask your readers to try it and report. If I can afford to experiment, if you call it so, on my valuable stock, and daily see the results are so favorable, I think it would pay those who raise for market."

A Fine Farming Region at the West.—The comparative prosperity of many Western farmers, who are turning into cash their corn in the form of pork products, and their pasturage and corn in the form of beef—the latter now in good demand, and likely to be still greater—is attracting the attention of many Eastern people, and we hear of large numbers going to settle the present season, especially in Eastern Nebraska, where, from all accounts, there still remain in market some very fine agricultural lands, as well as in many other localities. We happen to know some of these parties from Eastern New York, from whom we shall get further information, and will be happy to communicate any facts that we may have, or obtain, to such readers as have serious thoughts of trying farming at the West.

Too "Un-knowing"—Too "Un-suspecting."—A Western news-paper of large circulation says, editorially, "we never insert advertisements *known* to be of immoral or swindling character"...."we refuse thousands of dollars offered for such advertisements every year, and throw out *at once* those *suspected* of being of this nature," (the italics are ours). Yet in the same number we find some 20 medical (?) advertisements of deafness positively cured; stuff producing heavy beards on smooth faces; Rev. (?) Inman's Bible House remedy for "early indiscretions," "discovered by a missionary in South America;" "Manhood Restored;" sundry cures for "early indiscretion;" sure cures for fits and epilepsy, for opium eating, etc., and others of an equally absurd or swindling character; some fifteen employment advertisements, including $350 a month guaranteed, of which at least half should be let alone severely; genuine Swiss time-keepers for 50 cts.

(a small bit of metal sun-dial of no practical use); about $50 worth of Jewelry, according to the description, for $1; good $3 watches!; eight pieces of gold jewelry worth $6 for 50 cents; "bankrupt stock" of course! two swindling Wall-street "Stock privilege" dealers, etc., etc. If the Editors or Publishers know the character of these advertisements, why did they give the quasi endorsement of them in the editorial? If they don't "know" or "*suspect*" any thing "immoral" or "swindling" in them, then they must be very "verdant youth," too un-"knowing," too un-"suspecting," to be safe guardians of their readers' interest.

How to Prevent Gapes.—"Mrs. H. W. M.," Jefferson Co., Ky. The worms found in the windpipe of young chicks, are those known as gape-worms. It is quite possible that those often found in the intestines are the same worms, but the full history of the gape-worm is not well understood. It is supposed, however, that the old fowls carry the worms, and discharge them with the eggs in the dung. The eggs are picked up by the chicks, and are hatched in the stomach, from whence they crawl up the gullet, until they reach the windpipe, where they stay. A very similar worm infests sheep and young lambs, in very much such a way as this. It is easy to prevent lambs from being affected, by keeping them from pasturing after the old sheep, and it is equally easy to prevent gapes in chickens, by keeping them upon fresh ground. Prevention in this case is easier and better than cure, especially when there is no cure that can be depended on.

Alfalfa (Lucern) in Texas.—"J. W. S.," Bandera Co., Texas. Alfalfa succeeds well in California, Northern Mexico, and in Texas along the Rio Grande, and would probably do well with you. Seed can be best procured in California, as that grown in a dry locality, succeeds better in a dry climate than other seed. It can be procured of B. F. Wellington, San Francisco.

A Subsoil Plow for Lands that wash.—"J. A. K.," Knox Co., Mo. Any plow that will open up the subsoil, and leave channels for the percolation of water, would be serviceable for lands that wash. Light lands, with clay subsoils, are very subject to this inconvenience. In such cases subsoiling with a mole-plow is to be recommended. The deeper the subsoil is disturbed, the more effective is the result.

How to make a Stone Drain.—"C. S.," Lewiston, Me. In laying a drain to be made of stone, the ditch should first be dug out to a proper depth, say at least three feet, and of a width sufficient to leave a clear passage for all the water expected to flow through it. Place long narrow stones along the side at the bottom, bed the stones well, and pack clay at the back to prevent water from making a channel behind or under the stones. Then lay flat stones across these, each end resting upon the first mentioned stones, leaving a clear water channel. Afterwards pack stone carefully on the top of the flat stones, covering all holes so that the earth cannot fall into the drain. If the drain could then be filled with gravel it would be best, if not, fill in with earth. Such a drain, well laid, will last as long as a tile-drain. The bottom of the drain should not be paved.

How to throw a Horse.—"C. A. H.," Somerset, Me. To throw a horse safely, a strong strap should be passed around the body at the saddle girth. A loop is fixed beneath the belly. One fore foot is lifted and fastened to the loop. In this condition the horse cannot kick. Straps are passed around the hind fetlocks, and a rope fastened to these is passed through the loop. A strap is also passed around the remaining fore foot, and a rope is attached to this. The last rope is drawn up until the horse is on his knees, when the other rope is drawn up, and the horse is gently pushed over upon his side. The ropes are then drawn up quickly and secured, when the horse is powerless.

Superfœtation.—"W. B. E.," Hancock Co., Ill. It is quite possible that a cow may produce two calves by different bulls. Such an occurrence has taken place occasionally with cows, and mares have similarly produced two colts. It is known as *superfœtation*. Sometimes both of the young animals live, but generally one or both die before birth.

Poll-evil.—"D. C. B.," Warwick, N. Y. "Poll-evil," so-called, which is really an abscess at the junction of the head and neck, is not serious unless the joint of the neck and head is involved. This is known by the stiffness of the neck, which prevents movement of the head. In this case it is almost certain that the spinal cord will be affected, and the animal lost. Otherwise, all that is necessary is to open the abscess so deeply that the matter may escape from the bottom, and dress it with a solution of half a dram of Chloride of Zinc in a quart of water. A tape should be tied in the wound, and when healing commences, this should be retained in the bottom to keep it open until the top is healed.

Bitter Milk.—"Subscriber," Carroll Co., Md. When the milk and cream have a bitter or other wrong flavor, the cause should first be sought in the food or water. If there is nothing to be found in the food, the water should be examined with care, as this is the most frequent cause of bad milk. If the water is from a pond, or other stagnant source, and is not perfectly pure and fresh, this is probably the cause of the trouble. If not, it is possibly the effect of the clover, or the meal fed may be moldy from heating. The easiest way to correct the bitter taste of the milk, is to put a piece of saltpeter, the size of a small bean, into each pan of milk.

An Old Garget.—"W. H. D., Washington, D. C. When a cow's udder becomes permanently indurated, from the effects of an attack of garget some time previous, the structure of the gland has become changed, the milk-ducts have become thickened and closed, and there is no remedy. It is very probable that there will be trouble with the udder when the cow again has a calf.

Cement Roof.—"D. O. S.," Saginaw Co., Mich. A cement roof may very easily be made, by having an edge strip all around, so as to leave a space two inches deep all over the surface. The roof should not be more than one-eighth pitch, and may be very nearly flat. The cement should be mixed with four times its bulk of sand, while dry, water should then be added, until sufficiently plastic. The cement is to be laid on with a plasterer's trowel, and finished smoothly. When dry and hard, it may be coated with gas-tar and sprinkled with fine sand.

Compost of Fish, Plaster, and Earth.—"Z. M.," Suffolk Co., N. Y. In making a compost of fish, earth, and plaster, the plaster would have no injurious effect upon the fish, but, on the contrary, would be beneficial in fixing the ammonia which would be formed in the decomposition.

Slatted Stable Floors.—"B. F. H.," Lake Grove, N. Y. The slatted floor referred to in the *American Agriculturist* for June, page 217, is movable. When the floor beneath is to be cleaned, the slatted floor is removed and then replaced. This floor can be laid upon the ground or a bed of sand, which can be renewed whenever necessary, and thus the horse will be kept clean from litter.

Punch to Mark Chickens.—"J. A. E.," Eastman, Pa. A punch to mark chicks, so as to distinguish one brood from another, may be procured from any dealer in shoe findings, or harness maker. The usual leather punch may be used.

The American Veterinary College.—We have received the Second Annual Announcement and Report of the American Veterinary College. Some interesting and novel features are noteworthy. Among these are the free scholarships offered to each State Agricultural Society in the country. A preliminary examination, to which candidates for admission are to be submitted, and the extension of the time of study, to three full courses of lectures, instead of two. These innovations will undoubtedly tend greatly to increase the value and efficiency of the college.

Treatment of Garget.—"C. D. R.," Passaic Co., N. J. The proper treatment of garget depends much upon the character of the disease. Generally it is sufficient to give some cooling laxative medicine, and to apply cold water to the udder, leaving wet cloths upon it, supported, if necessary, by a broad band around the cow. The udder should be freed of whatever milk it may contain, and if the milk is clotted, it may be removed by injecting into the teats, with a metal syringe, a pint of water in which a teaspoonful of carbonate of soda has been dissolved, and after a few minutes milking it out. The cow's feed should be very light and cooling.

Vetches.—"W. McG.," Clearfield Co., Pa. Vetches, or tares, will grow very well in your locality. The seed can be procured of the principal seedsmen in New York, and perhaps elsewhere. The Veteh is a very good fodder crop. It is better to sow it with barley or oats; 1½ bushels of Vetches, with 2 bushels of the other.

Rearing Chickens for Market.—"J. C.," Fairfield Co., Ohio. It would be impossible to rear "broilers" for the New York market, so far away as Ohio. These young chickens are sent to market alive, and being very tender at their early age, would not survive the long journey in good condition. But New York is not the only market for poultry of this kind. The most profitable poultry raising we have heard of, was near a small village, where a large country hotel or boarding-house was located, the proprietors of which were glad to take at the highest price all the poultry raised. It is in such localities, as this, that special poultry raising is most profitable. Half-bred Light Brahmas have, so far, made the best broilers, but the Plymouth Rocks promise to compete closely with them. "Corbett's Poultry-Yard and Market," price 50 cents at this office, is a good little manual on this subject.

Ensilage of Green Fodder.—"R. M. L.," Alexandria, Va. We do not know of any person in this country, who has tried the preservation of fodder by ensilage. It is not a new practice by any means; the writer has seen fodder thus preserved on a French farm, over 20 years ago. The material in this case was beet leaves, which lie closely, and are very easily preserved. Corn fodder has been preserved by numerous French, German, and Hungarian farmers for five or six years past, and very particular accounts of it are given in the foreign agricultural journals. Several dairymen known to us, have thus preserved fresh brewers' grains every year. There is no doubt about the success of the process, if it is properly conducted. A full account of this process was given in the *American Agriculturist* for June, 1875.

Blindness in a Horse from Ophthalmia.—"M. J. S.," Caroline Co., Va. Periodic Ophthalmia, is almost certain to end in blindness. The disease may come and go for some time, but at each attack the film becomes more opaque, until finally the pus becomes absorbed, or the cornea becomes thickened and impenetrable to light. The only treatment available is to bathe the eye with a solution of 10 grains of Chloride of Zinc in a pint of water, and hang a cloth wetted with this over the eye. The horse should not be exposed to strong light while suffering from inflammation.

A Clydesdale Stud-Book.—At a meeting held Feb. 26th, at Glasgow, Scotland, measures were taken by some of the principal breeders of Clydesdale horses to establish a stud-book for the registration of pedigrees. The Earl of Dunmore took a prominent part in the proceedings, and offered a resolution, which was agreed to, for the purpose stated. A committee was appointed to carry out the object of the resolution, and agree upon details.

How to Get Rid of Chicken-Lice.—"J. C. M.," Luzerne Co., Pa. A poultry house may be cleared of lice, when badly infested, by thoroughly cleaning it, scalding the floor, if of boards, and washing it with soft soap and boiling water. Wash the rest of the house with hot lime-wash, and rub the roosts thoroughly with lard and kerosene oil in equal parts. A small quantity of the grease should also be rubbed under the wings of the fowls, and upon their heads. This plan may need repeating once, before the vermin are cleaned out entirely. A plenty of dry earth or coal ashes should be scattered in the house.

Blasting Logs.—"H. C. G.," Dardanelles, Ark. A charge of dynamite would certainly rend a cottenwood log 4 to 6 feet in diameter very easily and quickly, and at a much less cost than $4 to $7 per log. Common blasting powder might be used with good effect, by boring in the end of the log, so as to get the charge near the center, and tamping with sand. Dynamite, however, would reduce the logs to fragments, while powder would only split it into two or three pieces, which would have to be blasted again.

"Rearing and Feeding Cattle."—"D. H. H.," Poughkeepsie, N. Y., writes: "In the article, 'Lessons from Russian Agriculture,' you ask is there any better way of meeting the dilemma than by rearing and feeding cattle For the Eastern States I think there is, and that it would be better to buy steers in the fall, fatten them in the winter, and sell in the spring. Take 10 acres good land, plant 3 with Prickly Comfrey, 2 with Durra, or Guinea Grass, and 5 with Peas, pull the peas as soon as some begin to harden, and cure them the same as grass. Pulling is better than cutting, as the roots are worth more than the same weight of tops for feed, and the cattle like them. Now, with the produce of the 10 acres, I think I could feed and fatten 20 two-year-old steers in 4 or 5 months, if they were properly fed and taken care of, which would give me a quantity of manure, and I could till less land and grow more wheat and corn." [We do not see that this plan is, in reality, anything else than rearing and feeding cattle. It does not make any difference who rears and who feeds, whether one man or two. The seeming question was hardly intended as a query; the dilemma to our mind admits of no other solution. Guinea-grass would not survive your winters.—ED.]

Getting Rid of Stumps.—"T. H. D.," Oceana Co., Mich. Where improved land is worth less than $50 an acre, it will not pay to get rid of the stumps by any expensive process. It will be better to wait until they rot out. To extract them with a cheap stump puller, worked by oxen, and use them for fences, would be better upon cheap land, than blowing them out by dynamite. This can only be done where the land is valuable.

Basket Items continued on page 273.

Locusts—and Locusts.

One of the New York illustrated papers, wishing to be funny over the appearance of Locusts in New Jersey this year, publishes an engraving called "Summer Boarders," in which a N. J. farmer is met at his gate by the arrival of a whole family of visitors, which are represented as insects in costume and carpet-bag. The engraving might be funny enough, had the artist not, by a sad mistake, made the visitors the Western or Rocky Mountain Locust, which does not come East, instead of the 17-year-Locust, which is the one at present so abundant in parts of New Jersey. The name Locust, being used for the Western scourge and the Eastern visitors, has led many to suppose that the insect was in both cases the same. Not only are the two insects so unlike as to be placed in distinct sub-orders, but they are strikingly different in their habits. The Western Locust so closely resembles one of our common grass-hoppers, as to require close observation to distinguish them. An account of this insect, with engravings, was given in the *American Agriculturist* for July, 1875. It is known as the Rocky Mountain Locust, (*Calopteuus spretus*); its ravages have been confined to the country immediately East of the Rocky Mountains, and fortunately it has not reached so far east as the valley of the Mississippi. The insect which is now attracting attention in New Jersey and some other localities, is known as the 17-year Locust, *Cicada septemdecim*. The genus *Cicada* is well known to most of our readers in the common Harvest-fly, also called Dog-day Cicada and Jarbng, (*C. canicularis*), a remarkably square-headed insect, about an inch and a half long, which makes its appearance over a wide extent of country near the end of July, and by its shrill note, said to be audible for a mile, announces that the dog-days are at hand. As an account of the 17-year Cicada or Locust, as it is commonly called, will serve to answer numerous questions, and relieve some apprehensions, we give a brief outline of its habits, referring those who would know more about it to Harris' Insects, and to Riley's "First Report on the Insects of Missouri," (1869). We reproduce here some engravings, made to illustrate an article published in 1866, in which year the insects made their appearance in Western Pennsylvania. The eggs are laid by the parent insect, in grooves in the twigs of trees, as shown in figure 1; they hatch in about 6 weeks from the time they are deposited; the young larva is about $^1/_{16}$ of an inch long, white, with long feelers, and six legs, the first pair of which are remarkably large, shaped somewhat like lobster-claws, and well calculated for digging. Soon after it is hatched, the young insect drops to the ground, and at once burrows into the earth; here they live upon the roots of plants, it is supposed that they employ their beaks in sucking the juices of the roots; but little is positively known about their manner of feeding. The insect continues this underground life, subsisting upon roots, increasing in size, and occasionally casting its skin, for 17 years! When the time comes for it to end this subterranean existence, it works towards the day-light, making a cylindrical channel ⅝ of an inch in diameter, with cemented sides, which reaches to the surface. The grubs, or more properly, pupæ, remain near the surface for several days, and at a favorable time they crawl out, always in the night. In this condition they are soft, whitish, and bear but little resemblance to the perfect insect; they crawl part way up the trunks of trees, or to some other place, and firmly fasten themselves by their claws. After a while the skin bursts along the back, and the perfect Cicada gradually works its way out, leaving the shell in a perfect state, save the rent in the back, (fig. 2), where it was made fast; it is semi-transparent, and has somewhat the appearance of parchment. When the insect leaves the skin, it is at first very soft and limp, with no conspicuous wings; in a few hours a great change takes place, its body dries and hardens, its wings unfold and take their proper shape, and it appears as in figure 3; it is soon able to fly off in search of a mate, and to add its note to the orchestra already in full blast. The sound is not produced by the month, but by a curiously constructed drum, found only in the males; a tightly stretched membrane, made to vibrate by the muscles of the insect, produces the note. Where the insects are numerous, their combined drumming sounds like a thrashing machine in operation. The 17-year Cicada is distinguished from the common Harvest-fly, by its much narrower head and body, and especially by its red eyes, and the orange-red color of the edge and larger veins of the wings. Near the tips of the wings there is a darkish line, somewhat like the letter **W**, which, to the superstitious, has long stood for "war," though, as there are two of them, some one has suggested that "warm weather" is the more appropriate interpretation of these "signs and omens." After pairing, the females deposite their eggs. They are provided with powerful piercers, with which they make grooves in the small branches or twigs of trees, in which the eggs are deposited in two rows, in clusters containing 15 or 20 eggs each. Each female lays 400 to 500 eggs, after which she dies. The chief damage done by the insect, is in mutilating the twigs of fruit trees in depositing the eggs; though provided with a beak, it is not known that the perfect insects feed to any extent, and they are unable to eat the foliage. They are much more frequent upon forest trees than in orchards, but when they come upon fruit trees, there seems to be no remedy. The only thing to be done is to cut and destroy the twigs containing the eggs, to prevent the larvæ from entering the ground in that locality. The insects do not appear the same year all over the country, there being a great number of different broods, each appearing at intervals of 17 years, and there is scarcely a year but what they are present in some part of the country. Mr. Riley, in the report above referred to, gives the statistics of 22 different broods, some of which, mostly confined to the Southern States, complete their career in a shorter time, and appear every 13 years. The present brood is found on both sides of the Hudson River, in a part of Connecticut, in Northern New Jersey, and in parts of Pennsylvania, Indiana, Michigan, North Carolina, Virginia, and Maryland. Its appearance at intervals of 17 years has been recorded ever since 1724. Next year a brood is due in Central Illinois, Southern Iowa, and Northern Missouri.

Fig. 1.

Fig. 2.—THE EMPTY PUPA CASE.

Fig. 3.—THE 17-YEAR LOCUST, OR CICADA.

DO THEY STING?—Since the above was in type, a friend asks us if the 17-year Locusts sting, as the statement that they do is frequently made in the papers. The insects have no proper sting, like the wasp or bee. The female has an ovipositor, and a beak for sucking, while the male has the beak only. Attempts to make the female puncture the flesh with her ovipositor have failed, and it appears that whatever wounds have been made by the insect—and the accounts of these are greatly exaggerated—are from the beak. The authenticated cases show that this has sometimes, though very rarely, punctured the flesh, but produced no more serious results than the prick of a pin, as the beak has no poison gland. It is probable that these cases are very rare.

Bee Notes for July.

BY L. C. ROOT, MOHAWK, N. Y.

Indications at the present writing, are, that surplus honey may be stored earlier than usual. In most sections, in this latitude, however, the general crop may be expected during July. In Central New York, Basswood (or Linden) begins to blossom from the 12th to the 20th of July, and at that time we expect our heaviest yield.

If the honey is to be taken from the combs with the extractor, the old honey should be taken out clean from each hive, before the yield from Basswood begins, in order that the pure white honey from that may be kept by itself. This is one of the advantages of extracting surplus honey. If bee-keepers will study the different honey-yielding plants, and watch the time of their blossoming, they may take each kind by itself.

If boxes are used, and one quality of honey falls before they are entirely filled, the bees must be allowed to store two qualities in the same box, or they must be taken off when only partly filled.

Hives that are to be boxed, should have boxes in place promptly. As fast as boxes are filled, they should be removed, as by so doing the combs will be much whiter than if left upon the hives longer, and the bees allowed to pass over them. When the first boxes are removed, empty ones may take their places, but care should be taken not to put empty ones on the hives too late in the season. It is quite common for inexperient bee-keepers to have too many partly filled and soiled boxes. When boxes are taken off, place them near the entrance of the hive, and blow a little smoke into them; then, by slightly rapping them, the bees will pass out and go into the hive. For applying the smoke for this purpose, nothing can work more satisfactorily than the Quinby Smoker, shown in the engraving. It will be seen by its construction, that the smoke can be very easily forced into the boxes. It is desirable, especially late in the season, to remove the bees from the boxes as speedily as possible, and put the boxes where the bees cannot have access to them, to prevent robbing.

Hives should be well ventilated. If the boxes are placed upon the hives at the proper time, giving the bees sufficient room to store their honey, and the hive is so ventilated as to avoid their becoming over-heated, swarming may often be prevented.

If, after bees have a good start in boxes, they insist upon swarming, the swarm may be hived in a new hive, and after removing the old hive to a new stand, the new swarm may be placed upon the old stand. Two or three days later, remove the boxes, that are partly filled, from the old hive, and put them upon the new one. In this way all the working force will be with the new swarm, as nearly all the old bees will return to the old stand, and after-swarming will, in nearly every case, be prevented.

It was my intention to have said in Notes for June, that one of the best swarms of bees I have, is the one wintered on its summer stand, and the amount of honey it consumed was given each month during the winter. The swarm had no protection except a quilt placed over the frames. I shall give my views on these experiments before it is time to prepare bees for the coming winter.

[Mr. Root is particularly desirous to so shape his Notes as to meet the monthly wants of our readers. Bee-keepers seeking information, will please forward their questions directly to him. In sending them to us, there may be a sufficient delay thus caused, to prevent the answer from appearing the following month.—ED.]

A Potato Digger and Cultivator.

We give herewith illustrations of two implements that may be found very useful, and in fact where potatoes are grown in large quantities, indispensable. The labor of harvesting potatoes by hand is a very slow and costly process, and some machine, by which the work may be done both quickly and well, is greatly to be desired. The implement shown at figure 1, is Rue's Improved Potato Digger, and although we have not actually tried it in the field, its appearance recommends it as promising to be effective. It is provided with a coulter for opening the ground, to which is attached a revolving fender which prevents the vines from clogging it. The digger follows the coulter and lifts the potatoes, the screen behind separates the potatoes from the earth and leaves them upon the surface. With a fair crop, fifteen pickers are required for each digger. A curved knife attached to the digger enables it to raise sweet potatoes; the vines being cut on one side by the knife prevents them from choking the digger. This implement is made by G. W. Rue, Hamilton, Ohio.

A hand cultivator, which will be very useful for root crops in the field, or for corn, beans, potatoes, or other crops, which are planted in rows too narrow for the use of a horse cultivator, is shown at figure 2. This is also made by Mr. Rue. In making a trial of this implement in beans, sweet corn, and potatoes, we find that a man can go through a quarter of an acre in an hour with great ease, and do very clean, good work, the rows being 24 inches apart. In small corn, carrots, and other crops, that are tender and easily injured by rough work, a spiked roller attached to the cultivator works close up to the plants, without throwing earth upon them, and cleans and loosens the ground very thoroughly. In using the hand cultivator, the handles are grasped and the implement is then thrust for-

ward for two or three steps, it is then suddenly drawn backwards, and again thrust forward with

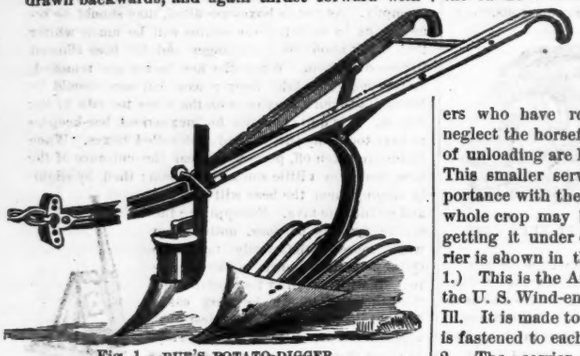


Fig. 1.—RUE'S POTATO-DIGGER.

a sort of jerking or punching motion; this method of working is very easy compared with a steady pushing motion, which makes the machine work somewhat harder, but in our hands not too hard at all. This little machine will be found very useful

Fig. 2.—RUE'S HAND CULTIVATOR.

in field work, where a larger cultivator may not be needed, or indeed to use in place of a larger one.

Hay Harvesting Machinery.

The labor of harvesting grain and hay has been more facilitated by machinery than any other farm work. But few young farmers can remember the slow and tiresome sickle, or the laborious cradle, with which grain was formerly reaped, or the scythe and rake with which hay was slowly gathered. The splendid harvesting machinery now in use in

Fig. 1.—THE ANTI-FRICTION HAY-CARRIER.

the field, is a lasting honor to American inventors and mechanics, who have originated and constructed so great a variety of it, and a remarkable help to the farmers whose labors are so greatly eased by it. But while the labor in the field has been simplified, the means for securing hay in the barn have been to a great extent neglected. The majority of farmers who have reapers, mowers, and rakes, still neglect the horsefork by which the time and labor of unloading are lessened more than three-fourths. This smaller service of unloading is of equal importance with the greater one of harvesting, for a whole crop may be endangered through delay in getting it under cover. A very excellent hay carrier is shown in the accompanying engraving, (fig. 1.) This is the Anti-friction Hay Carrier, made by the U. S. Wind-engine and Pump Co., of Batavia, Ill. It is made to run upon a wooden track which is fastened to each pair of rafters, as seen in figure 2. The carrier is shown in the illustration just as it appears when the load has been drawn up to it, and the catch by which it is held in its proper position over the load is released. The draft upon the rope now carries the load on the fork to the place where it is required to be tripped. The carrier and fork can be used to stack hay in the field as well as to put it away in the mow. A hay or straw fork, the Noyes Grapple Fork, which we regret we have not space to illustrate, and which may be used to raise hay, straw, chaff, clover seed, manure, or any other small stuff is also made by the same manufacturers, and is a very effective and desirable implement to use with this carrier.

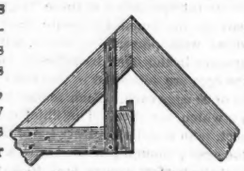


Fig. 2.—SECTION OF TRACK.

Science Applied to Farming.—XXXI.

Investigations of Seeds.

Of the many new ways in which science has of late come to be applied to agriculture, one of the most interesting as well as most useful is in the investigation of seeds. In 1869, Dr. Nobbe, director of the Agricultural Station at Tharand, in Saxony, commenced the study of seeds in common use in Germany, and founded the first "Seed-control Station." During the seven years following over 4,000 samples of seeds have been examined at Tharand; adulterations have been discovered, most ingenious in character, harmful in effect, and remarkable in amount, working a by no means inconsiderable injury to the agriculture of the country; and more than twenty Seed-control Stations have been established in Germany, while others have been either founded or projected in Denmark, Austria, Hungary, Holland, Belgium, and Italy.

One of the outgrowths of Prof. Nobbe's work at Tharand, is his lately completed *Handbuch der Samenkunde*, a volume of 642 pages, of which 390 pages are devoted to the physiology of seeds, 140 pages to the methods of determining their agricultural value, and the rest to the means of preventing frauds, purifying seeds, and other cognate topics. This work shows that a really new science, most interesting in itself and useful in its application, is being developed by Dr. Nobbe's researches. Aside from the valuable contributions thus made to our knowledge of the constitution and characters of seeds, and the nature and conditions of the germinative process, Dr. Nobbe has shown how different seeds may be readily distinguished from each other, how adulterations may be detected, and their extent estimated, and has devised a simple and ingenious apparatus by the use of which it is easy to determine what percentage of a given sample of seed is alive, and capable of sprouting and producing vigorous plants.

The urgent need of such work as this is shown by the revelations made of the condition of the seed market in Europe, some striking pictures of which are given by Nobbe and others in the European agricultural journals.

In a late number of the *Landwirthschaftlichen Jahrbücher*, Dr. Nobbe gives a report of examinations of a large number of samples of grass seeds, from which it appears that a great deal of that sold in Germany is not only extremely impure, but also miserably poor in germinating power. This is accounted for by the fact that much of this seed is not raised for sowing, but gathered along the highways, on the borders of the fields, and especially in the woods, by women and children who work very cheaply, and that the English, Austrian, and German markets are largely supplied with grass seed from these sources. A large number of analyses of samples of such articles, as they were offered in European markets, gave an average of 41 per cent of foreign matters, including a great many foreign seeds, among which were those of worthless grasses, poisonous plants, and parasites. Of the 59 per cent of seed which corresponded to the labels under which the articles were sold, only 18.3 per cent were capable of germination. A sample of Orchard grass, *Dactylis glomerata*, contained 39 other species of seeds. In a sample sold for Meadow foxtail, *Alopecurus pratensis*, only one-half the seeds were of this species, and of the genuine seeds only 5 per cent were alive and capable of germinating, so that 100 lbs. of the seed as sold, furnished 50 lbs. of inferior, worthless, or injurious foreign seeds, and only 2½ lbs. of seeds capable of producing plants of the species for which they were sold. All the samples referred to came from dealers who ranked among the most reliable in Germany.

In 1868, over three tons of so-called red clover seed were sold to farmers in the Saxon city of Chemnitz alone, of which two-thirds was yellow clover, and this practice prevailed generally in England and on the Continent. In 1874, after the subject of bad seeds had been extensively agitated for some years, a society was formed in Saxony for the purchase of seeds, and dealers were invited to furnish samples with prices. The samples were tested at the Station at Tharand. Of 51 specimens of red clover seed, 31 were found to contain seeds of the dodder, *Cuscuta trifolii*, the destructive enemy of the clover plant. The numbers of the dodder seeds in the samples varied from about 12 to 5,000 in each pound of clover seed.

A few years ago there were a number of establishments in London, whose sole business consisted in "doctoring" inferior and foreign seeds, for mixing with pure seeds. This was done by boiling, roasting, macerating, coloring, or otherwise treating seeds of weeds, or old seeds of the species to be sold, in such ways as to prevent their detection when used for adulteration. In 1869 it was estimated that 20,000 bushels of inferior turnip seed were thus prepared for mixing with the seeds of the varieties of turnips most used by English farmers.

One of the most original, if not the most diabolical of the methods invented for adulterating seeds consists in grinding quartz-rock, sifting out particles of the proper sizes, and coloring them to imitate clover seed. This sort of manufacture was carried on for some time at or near Prague, in Bohemia, and a lively business in the sale of the products seems to have been done in Hamburg. A letter from a party there to an English firm was discovered, offering a lot of over 16 tons, at specified prices for "colored" and "not colored,"—about $2.50 per cwt. for the former, and $3.50 per cwt. for the latter—and stating that the writer was "doing a large business" in that line with English seedsmen. We have some specimens of this artificial clover seed at our laboratory. So far as external appearance goes, they are very good imitations of the genuine seeds. We have two specimens of red clover seed, one pure, the other containing 25 per cent of these quartz grains. With the unaided eye it is difficult to distinguish between them. A good many persons have examined them closely, and it is very rare that any one has detected the sand by the eye alone.

But impurities and adulterations are not the only defects of the seeds that farmers buy. The pure seeds are very apt to have lost their germinating power, or to be, practically, dead. Here the variations in quality are as wide as in the botanical characters. In the work above referred to, Dr.

Nobbe gives a summary of the results of tests of the sprouting power of some 3,700 samples of seeds sold in the European markets. These included 383 varieties of seeds of field and meadow plants, garden vegetables, flowers, shrubs, and trees. In a good many cases nearly all of the seeds proved capable of sprouting, in not a few none of them sprouted. The germinating power is estimated by percentages. Where, on the average, 50 seeds out of every 100 prove capable of germinating, this percentage is 50; where all sprout it is 100; where all are dead it is 0. Of 79 samples of Timothy seed, (*Phleum pratense*), the best yielded 99 per cent of sound seeds, the poorest 15 per cent, while the average was 82 per cent. Of 19 specimens of Orchard grass, (*Dactylis glomerata*), the best contained 61, the poorest 0, and the average 22 per cent of live seeds. In 365 specimens of Red clover, (*Trifolium pratense*), the percentages of live seeds varied from 7 to 99, the average being 82. Wheat ran from 79 to 100, averaging 95, onions from 0 to 90, averaging 50, and so on.

In a reference to this subject in the annual report of our Experiment Station, for 1876, occurs the following:

"The utility of such work is quite evident. By means of the fertilizer control system now in operation, every farmer in the State can assure himself of the genuineness and value of the fertilizers he employs. To secure the best returns for the capital he invests, it is of equal importance to him that the seed sown should be pure, and capable of germination. Otherwise a part of the plant-food supplied to his crop will be wasted, or go to the support of useless or noxious weeds unwittingly sown with the seed which was bought as pure."

So far as I am aware, nothing like an extended examination of the seed market in this country has ever been made. Work of this kind has been commenced in our laboratory, by Messrs. Jenkins and Warnecke, who have studied the methods with Dr. Nobbe, at Tharand. Between fifty and sixty samples of the more common kinds of seeds have been examined thus far. I am very glad to be able to state that, so far as we can judge from these specimens, which have come from various parts of the country, the seeds sold in our markets must be far better than is the case in Europe. We have found but one extremely bad specimen among the number that have been examined. Most of them have turned out to be of excellent quality.

W. O. ATWATER,
Wesleyan University, Middletown, Conn.

Ogden Farm Papers.—No. 89.

BY GEORGE E. WARING, JR.

A writer in the "Atlantic Monthly" for June, makes a very good suggestion in connection with the Farm Village question. It is that when a wealthy citizen, retiring from trade, feels the agricultural emotion growing hot in his breast, he should not go into the country, buy "all the land that joins him," and spend his substance (with a delusion that he is making money) in getting out rocks, and building fortification stone walls, and a wooden chateau—with a trotting stable and bowling alley—and generally spreading himself, with the idea that he is "founding a family," and "encouraging agriculture." The only prominent influence that this sort of man has exerted over agriculture, has been to discourage it. With more similar cases in mind than I have fingers and toes, I do not hesitate to venture the opinion, that in no single instance in this whole country, has anything but failure resulted from this sort of expenditure. Some of the finest farms at the East, really fine farms too, well supplied with luxurious houses, graperies, gardener's cottages, gravel walks, and a long list of improvements, could be bought to-day for less than the cost of the stone walls with which they are fenced. I know of half a dozen instances where this process is going on now, and where the rosiest hopes, and the most glowing enthusiasm, are convincing the proprietors, at least, that they have found the philosopher's stone, and that where so many of their predecessors have ignominiously failed, they, with the aid of some undefined charm, are sure of success. These are, all of them, instances where any experienced farmer must see at once, that nothing but failure is possible as a final result. Every one of these men is sure to impoverish his estate, at its final settlement, by a very large proportion of his agricultural expenditure. One of the worst things about it is, that these cases afford the most brilliant examples for description in farmers' newspapers, whose editors are glad to have picturesque novelties to set before their readers. The consequence is, that a knowledge of these expenditures gets spread beyond its neighborhood. Farmers who live in daily observation of the "improvement," see its processes, understand its cost, and foresee the final result. It is the public beyond this limit which, getting only the published report, may be more or less misled, and fail to appreciate the utter wastefulness of the outlay. The result of this sort of thing is, I believe, always the same. Families are not founded in this country in any such way. In spite of the popular notion, money that is put into the land in this way, *does* run away with wonderful rapidity, often as fast as the sheriff can carry it. The only class of men who retire to the country in these later days, and spend their fortunes in encouraging agriculture, by improving their land at a cost ten (10) times greater than its average production for the next 20 years will pay interest upon, are those who have not the faculty of gaining knowledge by observation. The more costly school must, I suppose, always be kept open, but happily its agricultural pupils are growing fewer. The writer above referred to, says:

"Then there is another set of rich men, fewer in number, who, led by some vain and half romantic impulse—they would despise if it came up in business affairs—try to form great estates further away from the cities. They surround their mansions with a park-like solitude, and spend uneasy hours trying to enjoy their dignity where

"'Solitude hems round one burning spot of life,'

"and for such natures the trees offer only a barren sort of homage; these men need other men for admirers."

He then proposes that these city people should join interests with the farmers. That without bothering themselves with villas, they should interest themselves with villages, selling or leasing to those who will make useful neighbors, and encouraging and aiding the community in every practicable way. They would then help to break up the old lonely habit of farm life. They, and the others who might center about them from the town, would find the association with their country neighbors attractive, and their country neighbors would gain still more by the accession of a few people from the business centers. There is much more practical good sense in this suggestion than may be apparent at first.

The question of the Agricultural Department of the Government, naturally comes up with the inauguration of each new administration, and gets much valuable ventilation from the efforts made by aspirants for office, to secure the salary attaching to its management. It seems to be accepted as a self-evident proposition, that the great agricultural interest of the country demands recognition and encouragement at Washington. I was myself for many years a firm believer in the idea that the most important monied interest of the country should claim, as a matter of right, to be represented in the cabinet, the dignity of American agriculture seemed to require this. I have long since been of the opinion that the dignity of American agriculture stands in no need of such a decoration. What it most needs is, to be let alone, to be left to the legitimate action of the laws of supply and demand. As a taxpayer, it especially calls for a saving on the part of the Government, of the present foolish expenditure made to keep up this useless Department.

The very important dairy interests of the country would certainly be greatly aided by an elucidation of the causes of abortion in cows. These causes it is surely within the power of science to discover, and the necessary investigation would cost much time and money. The wide spread importance of the subject, makes it proper that the General Government, and not a single State, should undertake the investigation. It is said that Pasteur's scientific discoveries, concerning the microscopic beings or animalculæ affecting the growth of the grape, and the ripening of wine, have saved to France more than the amount of the German indemnity. An equally profitable field is open to science in this country. The grasshopper question alone is of vast consequences, but no one supposes that the Agricultural Department, as now managed, is at all able to cope with such serious work.

It has always been, even when managed at its best, a waster of money. Even its monthly publication of crop statistics has been suspended. These were of a certain value, but aside from this, it has devoted itself chiefly to giving away seeds, books—many of us have our shelves loaded with public reports, which we never read, and have thrust upon us seeds which we never use. This distribution of seeds and intelligence, may very properly be left to those whose commercial business it is, and it may be accepted as a universal truth, that both seeds and books, when bought and paid for, will be on the whole much better used, than those which are got for nothing. Of course, a certain amount of good is done by the circulation of Department Reports, and by the broadcast shedding of seeds of new and useful plants, but the amount that all this costs, as compared with the result, is simply stupendous. During the past 14 years the Agricultural Department has cost the country about *five million dollars*, besides large incidental outlays, including transportation through the mails of about three million copies of "Reports." The salaries and contingent expenses alone have amounted to over a million dollars; the seed distribution to over six hundred thousand dollars; and the experimental garden over one hundred and fifty thousand dollars. Directly or indirectly, this burden is borne very largely by our own class, and I think that any added *dignity* that has come to us from the fine building and beautiful grounds at Washington has been paid for in full.

I am not disposed to agree with those who clamor for the total abolition of the Department, nor is it perhaps advisable to make any sudden change in connection with its systems, but the present Commissioner, after a trial of eight years, has, I think, failed to convince those who have watched his course, that he is in any important respect fit for his position. A conscientious, scientific man, with the necessary capacity for administration, would in that time have convinced the people that they had no use for the stupid, heavy annual report that has been issued to them, and that so far as their money can be expended by the Government for their benefit, it must be used in ways which are not at all "showy," not even demonstrative. As suggested before, there are certain things which agriculture gravely needs, and which can be secured only by the judicious expenditure of a great deal of money and the labor and devotion of conscientious and capable men. With a proper Commissioner at the head of the Department, authorized to abolish the "Report," the experimental garden, and every form of expenditure which is intended only to make the Department "popular," there might have been obtained an amount of knowledge,—of a character which could be obtained in no other way,—which would have justified ten times the expenditure that has been made. The distribution of seeds has done but trifling good, if it has done any good whatever, and the publication of the "Report" has been a gigantic mistake.

Every item of information, which might have come into the possession of the Department, that was worth publishing at all, would have been greedily published by every agricultural and miscellaneous newspaper in America without charge. Whatever they would not publish, was presumably not worth publishing.

If the farmers are to have any say at all as to the manner in which money is to be spent for their benefit, they should insist that the present "grandmother system" shall be cut short off; that the Department shall be used for doing only such things as cannot be as well or better done in some other

way, and that the results of its investigations shall be given to the world through its usual channels of information—which are quite sufficient for the purpose, costing the Government no more than the expense of sending intelligent occasional circulars to the different newspapers of the country. We have tried Commissioner Watts long enough. Let us now try some one else who has an intelligent conception of what it means to be at the head of the Department of Agriculture in an agricultural country like this.

In reply to a correspondent from Washington Territory, I would say that the deep cans used in setting milk for cream are usually made 8 inches in diameter and about 30 inches deep. The best are those made under the patent of the Iron-clad Can Co., (of Greenpoint, N. Y.), the bottom of which is made of heavy galvanized iron. The extra

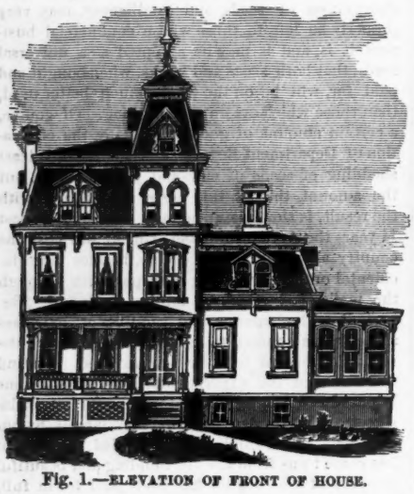


Fig. 1.—ELEVATION OF FRONT OF HOUSE.

weight at this point serves to ballast them, causing them to float in an upright position. It is rather heavy arms-length work for a woman to lift these cans out of the water. To overcome this, I have a wooden bar, running lengthwise over my tank from which there hangs a small pully, carrying a cord with a hook at one end for use in raising the can. The pulley is attached to the bar by a loop which may be slipped back and forth to bring it to a desired position.

A letter from Benton, Ill., asks how to treat a Jersey calf six weeks old which has the "scours;" how much milk to feed it; how to feed cows when on good pasture to make them give a good amount of milk; and how much milk my best Jersey cow gives. I should feed the calf only on fresh milk newly drawn—either from its own dam or from a cow which calved at about the same time. When once cured of his trouble, I should feed him on skimmed milk very gradually, increasing the proportion of new milk at the least indication of looseness of the bowels. I should get him to eat hay as soon as possible. Being once in condition, I should give him all the skimmed milk he would drink, and what hay or good grass he would eat, and should not allow him to run loose in the pasture until he was 3 or 4 months old. Cows on good pasture should have no additional food at all, if regard is had to their permanent value. I believe that all increase of milk that comes from feeding while cows have plenty of grass, is obtained at the cost of future usefulness. My best Jersey cow gives 18 quarts of milk per day when at her best; she hardly falls below half this quantity up to 2 months before calving time, and we have difficulty in drying her off finally. I have others which give 18, 20, and 22 quarts at their best, and which also hold out very well, but the smaller milker—being very rich in quality—will make more butter in the year than either of them, and it is *butter* and not *milk* that we ask of the Jersey. If quantity of milk is the object, a good Dutch cow and a good pump will beat the Jersey out of sight.

A House Costing $4,000.

BY S. B. REED, ARCHITECT, CORONA, LONG ISLAND, N. Y.

These plans were designed for a suburban residence, to take the place of one recently destroyed by fire. The original structure was cubiform in outline, resembling a huge box; with unbroken facades, and flat roof, destitute of beauty, and in strange contrast with the tasteful surroundings. The owner desired to use the old foundations, still in fair condition, without disturbing the grounds, underlying pipes, etc., and thus retain the nearly square ground plan, but a building with an exterior agreeing with the surroundings. While the main object in presenting this design, is to show that the ground plans do not necessarily determine the style of exterior dress, its general arrangement and character will be found to deserve favorable consideration....**Elevation,** (fig. 1.)—There is a constant demand for "Mansard Roofs," arising from an aspiration for structures signifying originality and progressiveness. The animated features of this style accord with activity, rather than of retirement, and adapt it to prominent situations, skirting the more public thoroughfares. The objections to such roofs result from their frequent misapplication. They are manifestly inappropriate for retired or secluded situations, or for persons of purely domestic tastes. They also lose their identity and expressiveness when duplicated in close and continuous proximity, as is often done in towns. But this is true of any other style. Variety is the spice of architecture....**Cellar,** (fig. 2.)—Hight of 8 feet in clear. It has an outside rear entrance, is well lighted, and contains ample space for the furnace, and divisions for coal, vegetables, etc....**First Story,** (fig. 3.)—Hight of ceilings 10 feet. The accommodations are conveniently arranged, and sufficient for a large family. The main entrance from the piazza is through large double doors and a vestibule. The hall is central and spacious, communicating with the principal rooms, and rear entry, and contains the main stairs, which are unusually wide and easy. The parlor and library, divided by large sliding doors, can be used separately or together as one spacious room when desired. The dining-room and kitchen adjoin, and have the necessary pantries, range, pump, sink, and stationary wash-tubs, with cold and hot water. A Conservatory is entered from the dining-room through double sash doors, adding a cheerful feature to this apartment, where the family spend much of their time. The rear may be reached from the dining-room in three ways—by the main hall and rear entry, or through the kitchen, or most pleasantly through the conservatory....**Second Story,** (fig. 4.)—Hight of ceilings 9 feet. The divisions include a hall, four large chambers with closets to each, a front hall bed-room, and a bath-room. Each of the chambers has windows in two sides, giving opportunity for plentiful light and fresh air. The clear width of the room sections, (5 yards each), favors the economical cutting of carpets. The main stairs are made continuous to the attic story. The bath-room is furnished with a bath-tub, wash-bowl, and seat-closet, and with

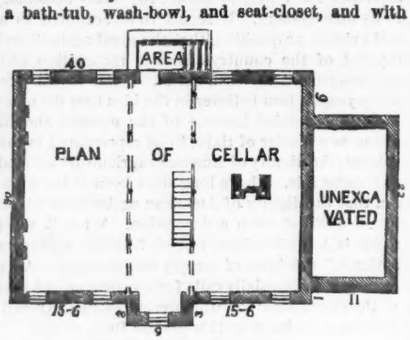


Fig. 2.—PLAN OF CELLAR.

cold and hot water....**Construction.**—The foundations, stone sills, area stoops, framing, inclosing, flooring, plastering, and painting, are similar to those described on page 212 of *American Agriculturist* for June, 1877. Care should be taken in covering the roofs, as the materials used (wood, tin, and slate), are entirely foreign to each other, and can only be placed in *contact*, and indirectly united. The wood should be thoroughly seasoned to prevent a future disturbance of the exterior covering. All flashings along the sides of the dormers and other uprights, should be 10 inches wide, and

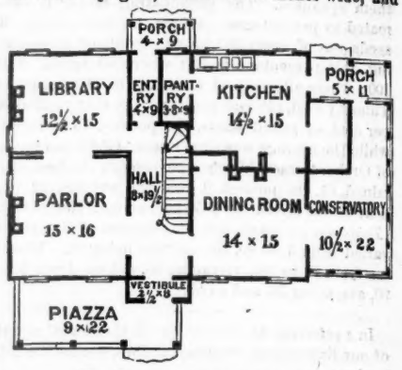


Fig. 3.—PLAN OF FIRST FLOOR.

double painted before being used. The conservatory is not floored, but is filled in with earth level with the foundation walls. A walk is laid through the center, of 1¼ x 4-inch slats, and the remaining space is devoted to plants. A furnace is placed in the cellar, with pipes to convey warm air to the principal rooms and halls of both stories, and to the conservatory. The pipes and register boxes, for conveying warm air to the second story, are placed in the chimneys while building them. There are open fire-places in the principal rooms, with marble mantles in the first story, and marble shelves in the chambers. Stucco cornices and centers, of appropriate patterns, are put it the principal rooms and

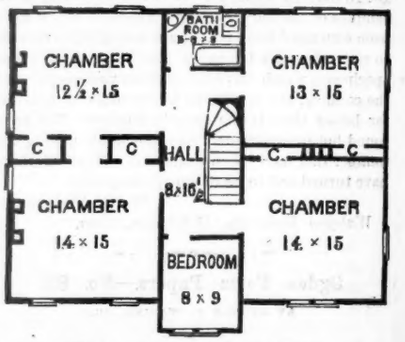


Fig. 4.—PLAN OF SECOND FLOOR.

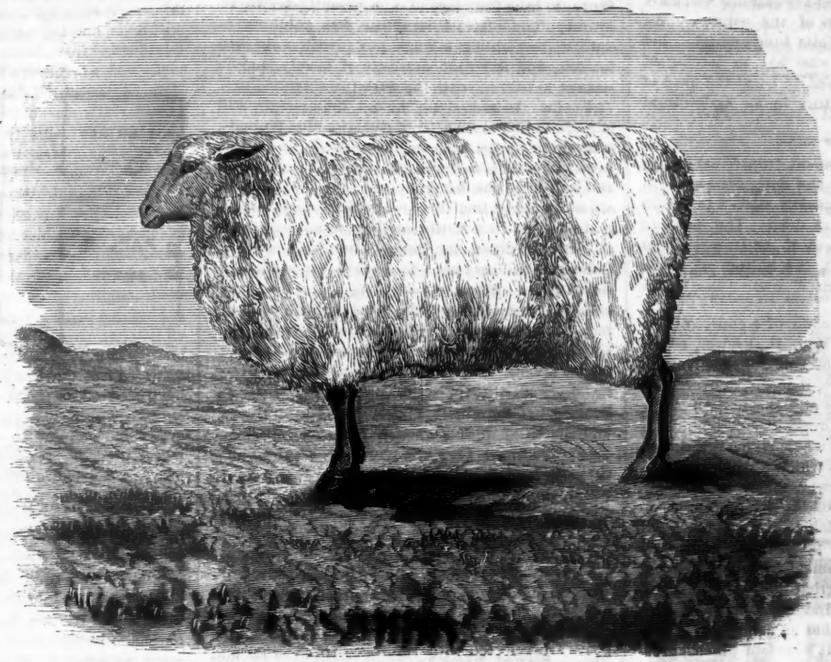
hall of the first story. A hall and stairway leading to the tower, is completed in the **Attic,** the other portions of the 3rd story are unfinished, but may be converted into pleasant rooms for school purposes, or chambers, as desired.

Estimate, cost of materials and labor:

114 yards excavation at 20 cents per yard	$22.80		
84 perches stone-foundation, at $2.75 per perch	231.00		
60 ft. blue-stone sills, steps and coping, at 28c. per ft.	16.80		
8000 bricks, furnished and laid, at $12 per M	96.00		
1000 yards plastering, at 30 cents per yard	300.00		
230 feet stucco cornices and centers, at 25c. per foot	57.50		
8305 feet of timber, at $16 per M	132.88		
2 girders, 4x8 in. 30 feet long.		Ties, 4x6 in. 350 feet long.	
2 sills, 4x8 in. 30 feet long.		Plates, 4x6 in. 247 feet long.	
2 sills, 4x8 in. 40 feet long.		Perlines, 3x8 in. 215 feet long.	
2 sills, 4x8 in. 23 feet long.		51 beams, 3x8 in. 25 feet long.	
2 sills, 4x8 in. 11 feet long.		15 beams, 3x8 in. 21 feet long.	
9 posts, 4x7 in. 23 feet long.		50 beams, 3x8 in. 16 feet long.	
2 posts, 4x7 in. 32 feet long.		4 hips, 3x7 in. 14 feet long.	
2 posts, 4x7 in. 12 feet long.		Piazza, 3x7 in. 176 feet long.	
2 posts, 4x6 in. 11 feet long.		Piazza, 3x5 in. 86 feet long.	
6 locust posts at 30c., $1.80; 150 joists, at 16c., $24	25.80		
150 wall strips, at 13 cents each	19.50		
220 sheathing, at 18c., $39.60; 500 ms. tarred felting, $20	59.60		
400 clapboards, at 12 cents each	48.00		
370 hemlock boards for roof, at 16 cents each	59.20		
14 squares slate at $8½ per square	119.00		
20 squares tin at $7½ per square	150.00		
Cornice materials	99.62		
835 pieces flooring, (9 inch) at 18 cents each	60.30		
Piazzas and porches, complete	160.00		
9 cellar windows, complete, at $5 each	45.00		
24 plain windows, complete, at $12 each	288.00		
18 dormer windows, complete, at $16 each	288.00		
Stairs, complete, $100; 45 doors, com'e, at $10, $450	550.00		
Closets, $50; nails, $20	70.00		
3 marble mantles, $75; 4 marble shelves, $25	100.00		
Range and plumbing	260.00		
Sky-light in conservatory	12.00		
Furnace and pipes	150.00		
Carting, average 1 mile	40.00		
Carpenter's labor, not included above	300.00		
Painting, $220; Incidentals, $40	260.00		
Total Cost, complete	$4,000.00		

The Improved Kentucky Sheep.

It is a matter of experience with sheep-breeders and farmers, that the most profitable sheep are those of cross-bred races. By judicious, or what is greatly more probable, fortuitous or lucky crossing, the most profitable European sheep have been produced. The Oxford-downs, the Hampshire-downs, the Leicesters, and even the supposed purely bred Cotswolds and South-downs of England, as they exist at the present time, have all been more or less crossed with one or another of these breeds. The first three named are truly cross-breds, having been produced from the union of different races. The last two have been "refined" by mixtures of other blood, and have doubtless been wonderfully improved thereby. In France the Leicester-Merino is a very successful cross-bred sheep. In Germany, the Cotswold-Merino, and the South-down-Merino are also successful instances of the crossing of breeds. In Australia, the crossing of established breeds is a matter of promising experiment, and there is a probability, that ere long a breed may be produced, that will be more permanently suited to the peculiar necessities of the country and climate, than any old established, but foreign breed. It is equally true with regard to the origin of the American-Merino, and all these instances go to show, that it is easier and more profitable to procure a satisfactory race of sheep by crossing breeds, than by a course of acclimatizing a single race by close breeding. The fact is, that almost every established breed, has gained its valuable qualities in a comparatively narrow and closely bounded locality. The quality of soil and water, and peculiarities of climate, have had much to do with forming the character of the breed, and when by emigration, differences in these necessarily occur, the established character cannot be maintained, but almost universally rapidly deteriorates. There are isolated instances, in which the result of the change has been favorable, and the character of the breed has improved in the change; as for instance, in the case of the American-Merino among sheep, and the Jersey and Short-horn among cattle. In these instances, the influences of our climate and soils have been remarkably favorable, and the descendants of imported animals have greatly surpassed their ancestors in valuable qualities. It is no derogation to the skill of American breeders to say this; on the contrary, it is by their skillful management that these influences have been made to tell so favorably. There are amply sufficient examples of failure, that could be pointed out, to show that it is not every breeder here who succeeds, and that, although our climate may be a help, yet it is not alone sufficient for success. With regard to sheep, there is yet an extensive field for enterprise, in the way of breeding what may come, in time, to be American races. We have a wonderful diversity of soil, climate, locality, and pasturage. We have the hills and mountains of Wales and Scotland; the rich meadows, the seaside pastures and "downs" of England; the plains of Hungary; the Steppes of Russia; the dry pastures, both hill and plain, of Spain; the arid plains of Australia. All these are within our territory, and within our borders every race of sheep, noted for its valuable fleece, or acceptable mutton, can find a counterpart, if time and skill are turned towards the business of breeding such as may be suited to each locality. As an instance of a worthy attempt at the production of a native race, suited to a very peculiar locality, viz., the rich Blue-grass region of Kentucky, we notice the Improved Kentucky Sheep, which have been bred by Mr. Robert Scott, of Frankfort, Ky., since 1833, or during 45 years, and we here give a portrait of one of them. In a communication, for the whole of which we regret we have not space, Mr. Scott writes as follows.



IMPROVED KENTUCKY SHEEP, BRED AND OWNED BY ROBERT SCOTT, FRANKFORT, KY.

"The grand desideratum for the West and the South, is a sheep of large size, heavy fleece of medium wool, early maturity, active habit, and with a constitution strong enough to subsist, in the large pastures and open woodlands and prairies, both during summer and winter, without shelter or stall feeding, which last will always be reserved for other animals of greater value, and which require greater care.

"While all the various and excellent English breeds have their peculiar merits of form, and flesh, and fleece, and will always be in demand for them, yet any breed, which will possess the above qualities in the highest degree, can not fail to stand the highest in the estimation of practical sheep-raisers. These qualities may be largely, if not fully, combined in the same animal, by blending the different breeds which possess them in the highest degree. In breeding my flock I have, in turn, used all of the most popular English breeds, at different times; procuring new rams every two years, selecting such as possessed, in the highest degree, the qualities which I wished to transplant, and choosing for each male the females which were most in need of those qualities, or others which would develop them most highly. Since the early Saxony cross, I have bred to no horned sheep; and I have always used the rams of the purest blood which I could obtain, as, in them, the qualities which I wished to transplant, were most deeply imbedded, and would therefore most likely be transmitted to their offspring. Thus it appears that the 'Improved Kentucky' are about as pure-bred as other popular breeds; and the more especially, as they have in them but one (the original) crop of native or common sheep, all other blood in them being called pure. To produce the greatest uniformity, and to obliterate all differences of form, fleece, or flesh, I have several times bred to my own 'Improved Kentucky' rams, selecting them for the ewes so as to most successfully accomplish the desired object; and the flock is as uniform as the flock of any other breed.

"Besides many other premiums awarded to them in Kentucky, and four in other Western and Southern States, a premium was awarded to them by the

"JERSEY ROSALEE," THE PROPERTY OF S. G. LIVERMORE, CEDAR RAPIDS, IOWA.—(*See page 259.*)

Ky. State Agricultural Society, in the year 1856, and by the U. S. Agricultural Society, when the Fair was held in Louisville, Ky., in 1857; and a special diploma and medal were awarded by the great Centennial Exhibition at Philadelphia, to the wool of this breed of sheep, and to blankets made of it, and to their dressed skins with the wool on them, none of which were specially prepared for the occasion."

Among the Farmers.—No. 18.

BY ONE OF THEM.

In the article under this heading, which was printed in the February number, and, of course written in December, I deplored the lack of thorough teaching of the laws of breeding in connection with our Agricultural and Scientific Schools.

"The Yale Lectures on Breeding."

I recently received a schedule of a course of lectures delivered by Prof. Wm. H. Brewer, of the Sheffield Scientific School of Yale College upon this subject. The lectures were, it seems, delivered between the first of January and the first of April. The thoroughness of the programme is admirable, and its scope embraces the whole subject, with perhaps a single exception, to which I will allude. A letter written to Prof. Brewer, that I might learn more about this course of lectures, brought an answer, a part of which I take it, it is no breach of propriety to give you for publication, merely remarking, that the establishment by Yale College of the Professorship of Agriculture, which Prof. Brewer now fills, was the first recognition of agriculture as a science, as well as an art, by any American School of Learning. It is certainly most agreeable to the alumni of this school, (among whom are your Mr. Judd and "your humble servant")—to know that "Old Yale" is still giving good attention to Agricultural Science. Prof. B. writes:

"NEW HAVEN, May 15th, 1877.

* * * "Now a word on the history of those lectures. The school was expanded in 1864 by the addition of three professors, Verrill (Zoölogy), Eaton (Botany), and myself. Johnson and I completed a plan for an Agricultural Course in 1865, and as a part of that course, I gave a course of lectures on breeding before the class in January to March, 1866; and I have delivered a course each year since on the same subject. Becoming more and more interested in the work, and working over my notes last year, as knowledge increased, I systematized the matter more and more to my mind. In the spring of 1875 I was invited to go to California and deliver the course, with some other lectures, at the University of California. In accordance with the custom there, a *synopsis* of the topics was afterwards published in the 'University Bulletin.' Seeing how handy such a synopsis was, I have, for the last two years, prepared one, such as I sent you, for the convenience of the class. This course is the *thirteenth* time I have gone over the ground, the number of the lectures varying from 10 to 23—the fullest thus far given."

Coming, as this course does, just at the time when young farmers can best leave their avocations for a couple of months, I should think Prof. Brewer's lecture-room would be crowded. The exception to which I refer may be called

Breeding Brains,

and I am by no means sure it was not exhaustively treated under the head of Instinct.

A few days ago I took a run up to Colonel Hoe's beautiful residence, "Brightside," Morrisania, N. Y. The trip is most of the way by boat, and a delightful sail it is up the East River, under the cobwebs that precede the stretching of the Great Suspension Bridge, along by the navy yard, and Blackwell's Island, and Hell-gate; by the green slope of more islands, and the brick and stone of more almshouses—by broad stretches of troubled waters, opening as long vistas bounded by more green slopes and waving trees, and pleasant country seats—all on the right, while on the left, spreads out the ever varying yet always similar prospect of wharf, and street, and distant spires, and housetops, and chimneys, and the constant hum of the busy, busy city, which so makes its presence felt, that one feels as if the *din* were a part of the landscape.—Well, of all this I hardly caught a passing glimpse, for I fell in with my venerable friend, Col. J. H. Wallace, of "Wallace's Monthly," as true a horseman as ever tightened a girth, and with him the time sped quickly. He has been thinking and writing upon the breeding of horses with reference to their psychical nature, a subject to which my own thoughts have been a good deal directed of late, and which I think has engaged the attention of others, though I have seen little written upon it except indeed the articles of Col. Wallace.

We have been studying form, and style, and muscles, bone and sinews, bony leverages, constitution, endurance, lungs, nostrils, and every thing else except that which really makes a horse go. How often do we see two horses well matched, to look at, of the same color, alike in style, weight, muscle, and bone, and yet so ill-mated in temper that, while they are together, one does all the work, and the other gets nothing but whipping and imprecations. What is the difference?—Clearly, one has a *mind* to do his best, and the other is innately lazy. Training will help the matter a good deal, but that, if the horses are kept together, will spoil one while it makes the other. If each be trained to do his "level best" all the time, the horse with a will, will keep just so far superior to the other as he was the first time they were hitched up together. It is certainly within the province of breeders to consider these things more than we ever have done, and to breed spirit, docility, honesty, ambition, intelligence, and affection. We err in

Selecting and Training Stallions.

In those countries where, as a rule, horses are used entire for all ordinary work, the *natural temper* of horses is very much better than with us. Here, and in England, stallions for breeding purposes are selected with reference to external and useful characters and to pedigree. We usually geld early and break our horses afterward. The result of this is that, though the breaking is easier, yet the geldings are not half so well trained, and the stallions are apt to be half broken, and often ruined in temper by the breaking process.

In France they rarely geld a horse unless he shows vicious traits, and then, they always do—if they can't sell him to some American. As a rule, the temper of French horses is excellent, but one was landed here a few weeks ago—a superb fellow—that was as wicked as a thorough-bred. I fully expect to hear of his killing one or two men before long, for he is as intelligent as he is vicious. I had almost thought it was not in the breed to be right down "devilish," but this case undeceives me. Still, the breed is an excellent example of what selection and early, steady, firm training will do for the horse. Such an exception proves the rule.

The thing for us to do in making the new, improved, perfected breed of American trotters, is to breed brain, or intelligent force, which is *willing* to do its best. It can just as well be done as not, but it will take time and study. Instinct, which is innate intelligence and perception, has been cultivated in some directions astonishingly. Sporting and shepherd dogs are examples in point in other races, and the almost uniform and no less extraordinary intelligence of the Arabian horse, is at once an example of what has been accomplished in the course of ages, and an indication of the most obvious source of improvement for breeds of horses of low psychical development. At the same time, among modern races of horses which have any reputation for extraordinary merit, either for speed or draft, those in which there is the most Oriental blood, stand pre-eminent. The amount of the "blood of the Desert" claimed for the English thorough-bred is so great, that many are even unwilling to admit that there has been any admixture of cold blood. The merits of the Percheron are claimed to be due to Arabians, imported into Normandy at the time of the Crusaders, while the positive pedigrees of the Orloffs, show exactly the proportion of Arabian blood in their veins, and how it has been preserved and used so as to give the intelligent, nervous, psychical qualities the preponderance.

A Move in the Right Direction.

I was gratified to learn, through a private letter received a few days ago, that, under the proprietorship of Mr. G. D. Coleman, an extensive stock farm is conducted in Brickersville, Pa., by Mr. Colin Cameron. Here the experiment is being tried of crossing an Arabian stallion, possessing unusual weight and bone, and intelligence, known as the *Jenifer Arabian*, upon mares of various breeds, constitutions, and temperaments, in the expectation of establishing from among those with which the cross nicks well, a breed of intelligent, fast trotting, handsome horses, which will ultimately be remunerative. It will really be surprising if some very good results do not come from several of the crosses. Among the mares in his seraglio are two old-fashioned Percheron mares, weighing about 1,300, and capable of trotting a mile in 4 minutes, four half-bred Percherons, a Black-hawk Morgan, a Black-hawk Hambletonian, a Hambletonian, American Star, three other Hambletonian mares, one English bred, without a pedigree, one thoroughbred daughter of Lexington, and several high-bred road mares of notable excellence. By old-fashioned Percherons, I mean the small high-bred ones, of enormous muscle and power for their weight, and spirit to trot quite fast. If I am not mistaken, I have seen these mares at J. J. Parker's, in Westchester, who, I believe, imported them, and they are of the genuine type, which crossed, or rather where bred, for generations, with the heavy Normans, produces the so-called Percheron-Normans, so much in vogue just now, particularly at the West, and which the western people are so sensitive about having criticised. It would be better in the end for western farmers if more of their journals could appreciate and would advocate *quality* in French horses rather than mere bulk. There is enough of the spirit of the Arabian preserved in the horses of Perche to impart to many of these ponderous Normans, action and style, vigor and endurance at a fast gait, and real blood-like qualities. Nevertheless, the animal is a grade to all intents and purposes, except indeed in those cases in which the cross was taken several generations back, and by judicious selection has been perpetuated.

If the French kept pedigrees, it would not be such a lottery to select a really good big horse, but they keep none, and hardly know, or care to know, the dam's sire, or even which sire of several may have gotten her foal. When real Percherons are desired, it is not so hard to find them, though they are no longer numerous, but one recognizes them by their powerful compact forms, wonderful vigor and spirit, style and action, and the general perfection of the type, most frequently seen in horses weighing 1,300 to 1,450 pounds, more or less.

[By a curious coincidence our correspondent has selected a topic, which formed the subject of an editorial given last month, and illustrates his views on breeding by reference to the very animals of which we there gave portraits. His article was of course written without any knowledge of the editorial, and we are glad to have the points made there confirmed and enforced by one of so much experience, and so close an observer, as our friend who goes Among the Farmers and is "One of Them."—ED.]

The Use in Keeping Pedigrees.

The best pedigree in the world will not make a poor animal a good one—and having no pedigree at all, or a very poor one, will not hurt a meritorious animal, judged merely by points. These are almost self-evident truths, and they are the ones used as arguments by careless stock-raisers the world over, who wish us to believe that their method of pairing good, well-formed animals is all sufficient. Now every *breeder* knows, that the value of a pedigree consists in the systematic breeding which it shows, and which should agree with the appearance of the animal itself.

A good pedigree is something of slow growth. It is a record of the judgment of the breeder, or breeders—probably of several; and it is a history of the development, and of the fixing of, valuable characteristics, as well as of the weakening of undesirable tendencies. Short-horn breeders seem to understand this, but breeders of some other breeds of cattle and horses, apparently, do not bear it sufficiently in mind, if even they take it into consideration at all. A tyro of wealth spends his money

freely for a herd; that does not make him a breeder. If he owns the stock long enough to breed two or three generations, he may prove himself worthy the name, otherwise the herd runs out and is sold for very little. The action of the Short-horn breeders, in admitting to record animals showing a certain number of thorough-bred crosses, is promotive of good breeding, inasmuch as it will make breeders careful to preserve their pedigrees, and to make good crosses. The system of recording the pedigrees and performances of horses, is productive of similar effects, and the general result is an increase of value in pedigreed stock, and an understanding of what constitutes merit in pedigrees.

It is a little difficult to see the value of a pedigree, in judging of a milk and butter cow like the Jersey, except, indeed, as the pedigree indicates purity of blood. If we could see a record of the performances of the cows as yielders of butter, both in the line of the sire and of the dam, as we may study in the trotting registers the performances of the horses, we might soon hope to make great progress in breeding butter cows, and be morally certain that the number which would annually die of milk fever would greatly increase. What a stopper this is upon breeding butter cows!—Is there no sure remedy?

Talks on Farm Crops.—No. 5.

By the Author of "Walks and Talks on the Farm," "Harris on the Pig," etc.

Merchants, manufacturers, bakers, professional men, mechanics, capitalists, laborers, millers, railroad men, ship owners, farmers, forwarders, rich and poor, high and low, one and all, are hoping for a big crop of wheat the coming harvest.

But nothing can now be done to secure such a result. We can only hope and wait. The time for work was a year ago, or even two or three years ago. We cannot make land dry, clean, and rich in a day. Spasmodic efforts are of little avail in agriculture. We must look ahead, and lay our plans and make our preparations for many days, months, and years in advance. We want, as farmers, to cultivate an abiding faith in our calling—to feel that our products will always be wanted.

"Never mind all that," said the Deacon. "What we want to know is how to make farming pay. We don't raise wheat because people must have bread to eat, but because we want to earn a living for ourselves. And I tell you, farmers have seen hard times for a few years past, and if we are going to have better prices for wheat, corn, oats, beef, mutton, wool, and pork, we can all understand that it will be better for farmers and better for the country. It is nothing new. We have had such times again and again. High and low prices succeed each other, and will continue to do so. But what of it?"

"Simply this, Deacon," said I, "that high prices are of little benefit to the farmer who has little to sell. It is the good farmer who feels the effect of good prices. A farmer who only half works his land, and raises only average crops, will never make much money, no matter what prices may be. This was seen during our own war. The farmers who paid off their mortgages were the men who had previously got their land in condition to produce good crops, and who kept good stock and fed liberally. They had something to sell when produce brought high prices. It will be just so in the future. But it is a lesson most of us are slow to learn."

As I have said, it is too late to do anything to increase the yield of wheat this year. But in three months we shall be busy sowing the seed for the wheat harvest of 1878. We can do much, during these three months, to increase our chances of securing a large and profitable crop.

There are three prominent plans of preparing land for wheat. 1st.—The old English summer-fallow. 2nd.—The modern summer-fallow. 3d.—Sowing after spring crops, or after wheat, or on a fresh-turned clover-sod. The last is seldom practised in this country. In England it is very common, but in our dry climate it can be adopted only on very light, easily worked land.

"In England," said the Doctor, "I saw farmers plowing the clover sod and sowing the wheat the very day the land was plowed. And as you suggest, the same thing might be done here on light land; and on heavy soil when we have rain enough to thoroughly soak sod land—which is rarely the case."

"That is true," said the Deacon, "but two years out of three we are suffering from drouth just at the time when we want to sow wheat."

"And consequently," said I, "we must get our land plowed and worked down fine for weeks before we want to sow. This is our only safe plan. A rain that would be of little use on sod, or on a rough, cloddy field, might be sufficient to make a fine, mellow soil moist enough to cause wheat to germinate at once, and give it a good start. How best to get land in this condition, is the most important question for the wheat-grower. On very heavy clay land, it may be necessary to plow early in the spring, or in the fall previous, and to plow again during the summer, and again before sowing the wheat. This is what I call an old English summer-fallow. Three or four plowings, followed each time with roller and harrow, or cultivator, make the land mellow and moist, and in fine condition for the seed."——"No doubt about that," said the Deacon, "but it costs too much. It will not pay."

"There I think you are mistaken, Deacon," said I. "You must recollect that the work is done after we are through planting corn, and when there is often little for the teams to do. Farmers often let their horses lie idle while they are hoeing, or fighting the potato bugs. Hire an extra man and keep the horses at work. A good three-horse plow, that will cut a fifteen or eighteen-inch furrow, is one of the cheapest and most effective implements yet discovered for working the land."

What I have ventured to call "A modern summer-fallow," is decidedly the most popular in this section. A clover-sod is broken up in June, and this is all the plowing that the fallow receives. All the rest of the work is done with the roller, harrow, cultivator, or gang-plow. The sod is not disturbed. The surface-soil is stirred sufficiently to keep down the weeds, and if the work is well done, we have four or five inches of fine, mellow soil on top of the decaying sod, ready to receive the seed in September. A little fine manure spread on the surface, and harrowed or cultivated in, is a great help. And if we are going to get a good price for wheat, we could use guano with profit.

Now, as to which of these two methods is best, will depend much on the character of the land. My own opinion is, that we are in little danger of plowing the land too much. Still, on light, sandy loam, and especially if a little manure or guano is spread on the surface, it may be unnecessary to plow more than once. But on heavier land I think it is far better to plow three times—say once in June, again the last of July, and finally just before sowing.

But whether we plow only once, or whether we plow twice, or three times, we must not allow any weeds to grow on the fallow. Even if the weeds are all killed before sowing the wheat, we must remember that the growing weeds pump up a large amount of water out of the soil and evaporate it through their leaves. And one of the great advantages of a fallow for wheat is, that it furnishes a moist seed bed.

In sowing wheat after wheat, or after barley or oats, our principal aim must be, to retain as much moisture in the soil as possible. As soon as the crop is harvested, start the plow. Turn in the sheep and pigs to glean the stubbles, but do not wait for them. And no matter how dry the weather is, or how hard the land, do not wait for rain. Put on three horses and break up the soil. Follow with a roller. Then harrow, and roll again wherever the land is cloddy. The roller will break some of the clods, and press others into the soil. Go over the land again with a harrow, and this will pull up the clods and leave them on the surface, where the roller will have another chance at them. By repeated harrowing and rolling, as here indicated, the land can be reduced to a comparatively fine condition. At any rate, no matter how dry and hard it is, enough of the clods can be broken up to furnish fine soil to cover the clods that cannot be broken. Stick to it until this is accomplished, and before leaving the field, let every clod be pressed down into the fine earth by the roller.

On my own farm it is only on portions of the field where such work is necessary, and we do not go over the whole field, but only on what the men call the "clay spots." We go round and round on them with the roller and harrows, until the clods are all broken up. When thoroughly reduced to a fine, pulverized condition, these clay spots are the best wheat land on the farm. In the summer-time, the men are always longing for rain when they are plowing or harrowing, or rolling, or cultivating these clay spots. Of course, a good soaking rain would facilitate the work, but the land is in far better condition afterwards, if the clods are knocked to pieces when dry. And in point of fact, the clay-land farmer, instead of wishing for rain, ought to be thankful that we have such a drying climate. Clay land, thoroughly worked when dry, makes a splendid seed-bed as soon as we have a good rain.

"But suppose you do not have a rain," said the Deacon, "what are you going to do then."

"The land," said I, "will not be the worse for the working. We have three or four inches of fine soil on top, and this acts as a mulch, and keeps the soil below much more moist than it would be if left cloddy or unplowed. Let it lie until you want to sow the wheat. Then start the plow, and I shall be greatly mistaken, even if we have had no rain since the land was plowed, and harrowed, and rolled, if there is not two or three inches of the lower soil in a moist condition. Drill in the wheat at once, and if the weather is still dry, and likely to stay dry, roll. If not, not. When the soil is moist and mellow underneath, a little roughness on the surface is no objection for winter wheat."

As I said before, the indications are favorable for better prices for wheat, and it will pay to take more pains to prepare the land properly. When this is done, *then*, but not until then, it will probably pay well to buy some good commercial manure, to sow on our wheat this fall. We are getting artificial manures of far better quality and at cheaper rates than ever before, and in many cases we can afford to use them freely. If I was going to buy manure to sow on wheat this fall, I would select that which furnished 40 to 50 pounds of available nitrogen, and 40 or 50 pounds of soluble phosphoric acid per acre, at the cheapest rate. Nearly all the artificial manures offered to us, contain too much phosphoric acid, and too little nitrogen for wheat.

Pay no attention to those who tell you our soils are "exhausted." We must drain the land where necessary; kill the weeds and cultivate thoroughly; provide a good seed-bed, and drill in the wheat in good season, and our chances for a good crop are as favorable as they ever were.

Of course we shall use all the manure we have. The trouble is that we do not have enough of it—or rather we do not make it *rich enough*. It contains too much straw—too much carbonaceous matter and potash, and too little grain, bran, or oil-cake—in other words too little nitrogen and phosphoric acid. The remedy is to feed our stock better—or buy nitrogen and phosphoric acid in the shape of guano or other commercial fertilizers.

I wish we might have a great crop of wheat in 1878, and get $1.75 to $2.00 a bushel for it. And *now* is the time to make preparations. I do not differ with those who recommend growing more green crops instead of summer-fallowing. But as we do not, or can not, or will not, raise the green crops, let us summer-fallow for winter wheat, and fall-fallow for spring wheat.

THE BALANCE OF TRADE.—The Bureau of Statistics publishes some very interesting figures relative to the business of the country in its last quarterly report. The total imports of the country for the year ending June 30, 1876, were $476,677,871, and the total exports amounted to $596,890,973, leaving a balance in our favor of $120,213,102. In September the gain in our favor was even greater, equalling more than 20 millions of dollars. The gain during the whole year 1876 may probably amount to a balance in our favor of $320,000,000, a most grati-

fying change in our business relations with foreign nations, which must, in a very short period, free us from our financial and business difficulties.

Hints and Helps for Farmers.

FEED-RACK FOR SHEEP.—S. S. B.," South Bend, Ind., sends the following description, with sketch,

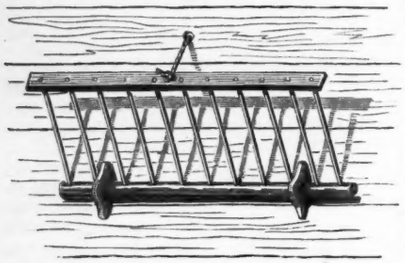


Fig. 1.—FEED-RACK FOR SHEEP.

of a feed-rack for sheep. The rack (fig. 1) is made of poles for the bottom and top, and cross-bars fitted into them, as shown in the engraving. The bottom bar slides loosely in brackets, which are fixed to the wall of the shed, and the upper bar is secured by a cord, which passes over a small pulley in a hole in the wall above the rack; a weight being attached to the outside end of the rope, serves to keep the rack always against the wall. When hay is put into the rack, that is drawn down, and when filled, is pushed back against the wall, holding the hay closely, and being kept in place by the weight. This prevents the hay from being pulled out too freely by the sheep or cattle. It is recommended that the grain-trough be placed beneath a rack of this kind, so that the chaff which falls from it, may be caught in the trough and saved for use, instead of being trampled under foot.

EQUALIZING THE TEETH OF A CROSS-CUT SAW is done by a contrivance proposed by S. S. B., and shown at figures 2 and 3. At *A*, fig. 2, is represented a piece of inch board, cut to an arc of a circle, equal to that described by the teeth of the saw, when in proper condition. The usual form of the saw is that of an arc of a circle of 20 feet radius, or 40 feet diameter. To form the curve, a piece of cord, 20 feet long, is fastened at one end to a nail on a barn floor, or to a peg stuck in the ground. Then with a pencil fastened to the other end, the proper curve is marked upon a piece of board,

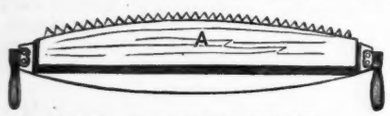


Fig. 2.—SETTING CROSS-CUT SAW.

placed 20 feet from the nail or peg. The board cut to this line is laid upon the saw, as shown in the illustration, and is clamped to it with thumb-screws. Then a file-holder and guide is made, as shown in fig. 3; the piece *B* being cut to fit the curve of the board, *A*. A piece, *C*, is screwed to *B*, to which a file is fastened by three screws, two at the shank, and one at the toe: and a handle, *D*, is also fastened to it. The position of the file is shown by the dotted line on *B*. The board *A* (fig.2) is clamped to the saw, with the curved edge properly placed with regard to the desired line of the teeth; the curved line of the guide for the file is placed on the edge of the board, and is pushed backwards and forwards, until every tooth is brought to an equal length. Until this is done, the saw will not work well, it will either jump when used, or run to one side or the other, as a tooth longer than the other may be set to one side or the other. The board *A* should be one inch, and the piece *B* five-eighths of an inch thick; the difference being the proper allowance for the set of the saw-teeth.

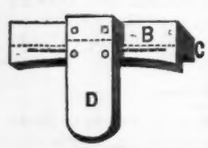


Fig. 3.

A CHEAP PORTABLE CRANE.—Mr. L. D. Snook, Yates Co., N. Y., sends drawings of an arrangement for raising or unloading boxes, barrels, bales, stone, etc., which is illustrated in figure 4. The apparatus can be made of any size desirable for the work to be done. The manner of connecting the lever to the upper piece of the frame is shown in fig. 5. From the short end of the lever a rope passes under a pulley, and thence around a windlass, which is secured by wooden boxes. When the windlass is turned, the rope is wound about it, gradually pulling the short end of the lever toward the ground, and elevating the opposite end. For most purposes a ratchet should be attached to the windlass, that the weight may be held at any point desired, and for raising heavy articles, the frame should be staked to the ground or floor, at or near the pulley. The iron staple, in fig. 5, should fit the frame very loosely, so that the end of the lever may be moved laterally several degrees if desired.

BUILDING AND STAKING STONE-WALLS ON WET SOILS. By L. D. Snook.—When stone-walls are built upon wet soils they are injured each spring by unequal settling, as the frost leaves the ground. If some plan of underdraining be adopted to carry off the water from underneath and at the side of the wall, this trouble will be avoided. Walls already constructed, may be thus protected by an under-

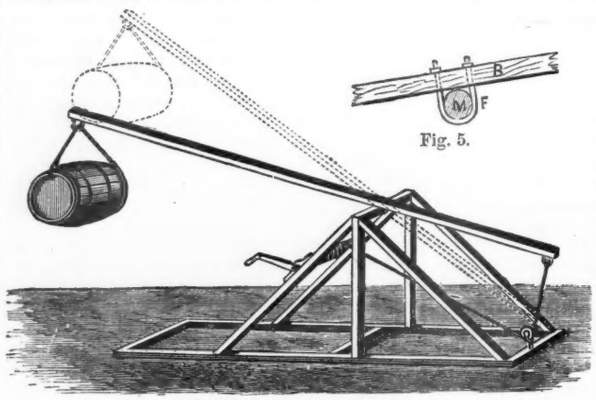


Fig. 4.—PORTABLE CRANE.

Fig. 5.

drain located six feet on each side of the wall, running parallel to it. This plan not only saves the wall, but is beneficial to the soil, for at least twenty-five feet upon each side. However, if a wall is to be built, a tile drain may be placed two to two-and-a-half feet under the wall, as shown in figure 6, but it should be well and thoroughly done, for should it become stopped up, its location would prevent repairing it. In figure 7 is shown a method of staking walls in localities where the soil is not readily drained; also as an economical and less troublesome method of keeping stakes in position, free from decaying, etc. When building the wall, there is placed crosswise, near the bottom, a piece of wood, 4 inches wide and about 2 inches thick; pine or oak slabs from the saw-mill will answer. This projects from the wall one foot on each side. Holes an inch and-a-half in diameter are bored, about three inches from each end, for the reception of the stakes, as shown in the engraving. The smaller and shorter stakes used are never thrown out by the action of frost, and

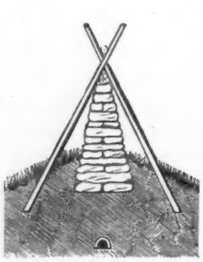


Fig. 6.

Fig. 7.

the lower end will resist decay three times as long as those of stakes placed in the ground.

Automatic Tide Water Sluice-Gate.

In the drainage of tide-water marshes, much difficulty is frequently encountered in procuring a sufficiently tight closure of the sluice-way against

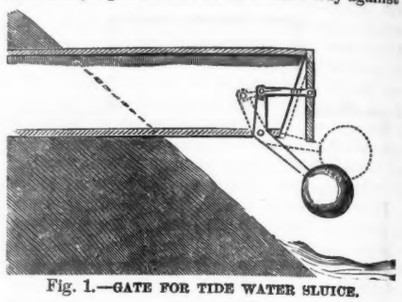


Fig. 1.—GATE FOR TIDE WATER SLUICE.

the rising tide. As the in-flowing current of the tide is relied upon to close the gate, this is not, and can not always be effective so soon as may be needed; for until the tide has risen sufficiently to press with considerable force against the gate, the in-flow is not stopped, and the water enters the sluice and rises upon the marsh. To have some automatic arrangement then, by which the gate can be effectively closed *before the tide reaches it*, will be very valuable. Having been engaged in the drainage of a tide-water marsh, to meet the difficulty here referred to, we applied the contrivance illustrated in figure 1. A tight door was fitted to the sluice, and hung upon hinges, as shown in figure 3, the bar upon which the hinges turned being passed through the eyed straps and fastened by a nut and washer, so as to move easily. A bent arm, made of either light strap-iron or of stiff wood, is attached to the bottom of the sluice, as shown, and is connected to the gate by a strap; it is furnished with a ball or float of light pine wood, the weight of which opens the gate when no longer supported by the water above the level of the bottom of the sluice;

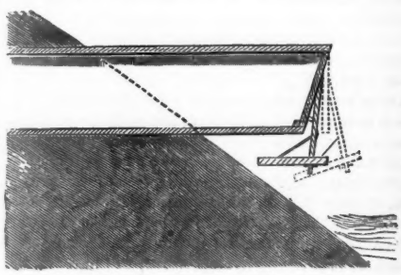


Fig. 2.—GATE FOR TIDE WATER SLUICE.

and the bouyancy of which closes the gate when it is lifted by the rising tide. This is made clear by the dotted lines in the figure, which show the position of the float and gate at high water, and the dark lines show its position at low water.

Another kind of float is shown at figure 2. This is made on precisely the same principle as the one before mentioned, but its mode of operation is different. A gate is made to fit the sloping mouth of the sluice, which, when not closed by the pressure of the water, or the buoyancy of the float, drops into a perpendicular position by its own weight, and opens the sluice. The position of the gate is then seen by the dotted lines. When the tide rises, the

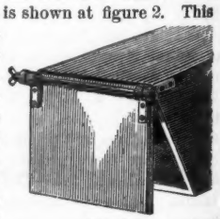


Fig. 3.

float is lifted, and the gate is closed, as shown by the dark lines. The float in this case is a piece of pine plank, 3 inches thick, and 2 or 3 feet long, so that it shall be sufficiently buoyant to close the gate

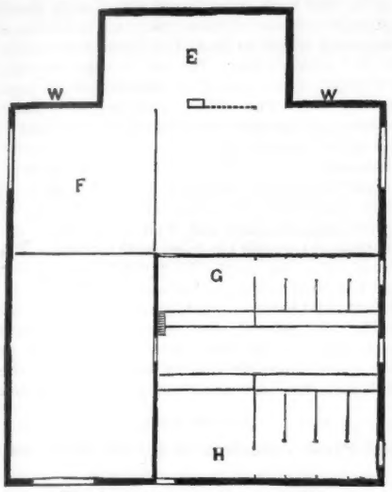


Fig. 1.—GROUND PLAN OF BARN.

firmly. The float is braced to the supporting bar by an iron rod, tightened by a screw and nut. The floats in either case should be made of light, dry pine, and be thoroughly well painted, to prevent them from becoming water-soaked, by which their effectiveness might be lessened.

Plan of Barn, with two Floors and Basement.

The accompanying plans of a barn, sent by Elder Brothers, of Darlington, Pa., are intended for a mixed farm, and to be built against a bluff that has a rise of about 14 feet, so that a driveway to the third story may be made with a moderately easy grade. It is intended to have 16 glazed windows for the stables, and 38 Venetian windows for ventilation to the barn above. The roof is intended to be one-third pitch, and to project two feet at the eaves. There are three ventilators in the roof, and the spouts of these passing through the floor may be used for hay or straw shoots. The plan of basement is given at figure 1. The root-cellar is at *E;* the stable or pen for small stock, *F*, is at the left, and the cow and horse stable on the right, at *G* and *H*. The wall at the front of this ground floor is two feet thick, of stone; the retaining walls, *W, W,* at the rear are 5 feet high; these are flanked on each side of the root-cellar by walls 10 feet high, and at the rear of the cellar the wall is 20 feet high. The doors and windows of this basement are shown at figure 2, which gives a view of the frame-work at the side of the building. The windows are here shown at *W, W*. The view of the section of the frame is given at figure 3, showing the side of the first, second, and third floors, with the stairways. The end

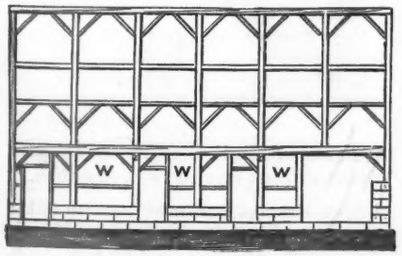


Fig. 2.—CROSS-SECTION OF BARN.

view is given at figure 4, and shows the manner of framing. The plan of the second floor is given in figure 5; the stairways being at *A, A;* the bays at *B;* the shoots at *C, C;* the sloping driveways to the second and third floors being also shown.

Management of Ducks.

A subscriber desires to know the secret of success in the management of ducks. First as to location. While it is true that ducks will live, and thrive to some extent, without water to furnish food, they are raised with most profit only where water is plenty, and well supplied with fish and other animal food. The paradise of ducks is a salt-water cove, fed by a fresh-water stream, where fish come in for spawning, and every tide brings a variety of food in from the sea. The range on the land may be very limited, if they have free foraging in such a cove. The feed in such a place is practically unlimited, while the water remains open, and the flock, however large, will need very little other food. Corn, or some other grain, however, should be kept always within their reach, that they may never lack food, or stray too far from home. If such a cove, or sea-side location, is not at hand, the next best place is a pond or stream, near the farm house. If the water swarms with frogs, fish, and insects, and has a marshy shore, it is all the better. In an inland location, they should have a wider range. A wet pasture, or swale, of an acre or more, is especially desirable. The location selected, the next thing is a duck-house, or pen, where they may be confined at night, and during the extreme winter weather. The laying season extends from February to September. Young birds of the early hatch will some times lay in October and November, but this is not the rule, and is not very desirable, as it will not pay to raise ducks in the win-

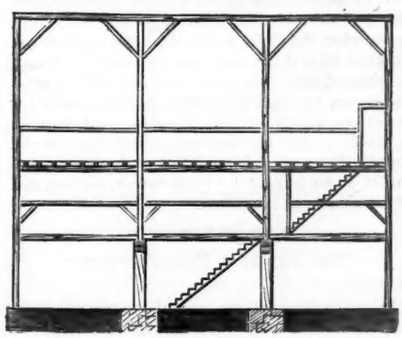


Fig. 3.—LONGITUDINAL SECTION OF BARN.

ter. The duck-house may be ornamental and expensive, or cheap. It should have a roof for shelter, and a board floor, or in the absence of boards, be kept littered with dry sawdust, or refuse matter; near the coast, sea weed is often used. The object of the house, or pen, is to save the eggs, and to keep the feet from freezing during the winter. If they are shut up at night, during the laying season, few eggs will be lost. Although ducks are quite as hardy as barn-yard fowls, snow and ice are not good for them, and it saves much food in winter to have them roost upon a dry warm bed. They commence laying much earlier, and continue later for good winter care. The hatching of eggs may be kept up from March until September. As mothers, we greatly prefer hens to ducks. They may be raised without water to swim in. The young have so many enemies, and are so eagerly hunted by Norway rats, that it is much better to keep them confined within narrow limits for the first six or eight weeks of life. They do not require a mother for more than three weeks. After that, they will do quite as well with an old box or barrel for their roost at night, and for shelter from storms. They are as sensitive to wet weather as chickens, and without shelter, drenching storms will kill them. They are also liable to be injured by the mid-day summer sun while very young, and the duck-pen should have shade of some kind during the middle of the day. For feed, we have found nothing superior to coarse-ground Indian meal, scalded, and mixed with fresh or skimmed milk. As they grow older, wheat and other grain may be added. Unbroken corn should not be given until they are four months old. They delight in earth worms, and if they have the run of an old garden or orchard, that is occasionally spaded or plowed, they will take care of the worms and insects. With a good location, ducks can be made as profitable as any other poultry. CONNECTICUT.

Irrigation of Crops and Meadows.

The old proverb about locking the door after the steed is stolen, may be of wider application than

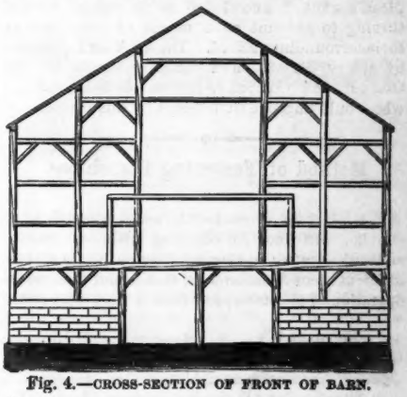


Fig. 4.—CROSS-SECTION OF FRONT OF BARN.

simply to stable doors. Owners of horses keep their stable doors locked, and similar provisions for safety are wisely made in other cases. Just now, the drouth in California furnishes a timely reason for considering the necessity for providing means and methods for irrigating crops, although there may not be a necessity for using these every season. The advantage of having a resource at hand in case of need, is just now very apparent to farmers in California, where the great San Joaquin Valley, the garden of that rich State, when there is abundance of water, is now bare of vegetation, and there having been only two inches of rain, crops are a failure. Irrigating canals cost nothing, after the first expense of construction, and are ready for use when such an emergency as the present arises.

So with meadows, in other places, where these may be irrigated, and ordinary crops are measurably safe against drouths. To lower the gate, and raise the water, turning it into the permanent channels, is only the work of a few moments, and may save the crop of grass, or preserve the pasture from drying up. It only needs that the facilities should

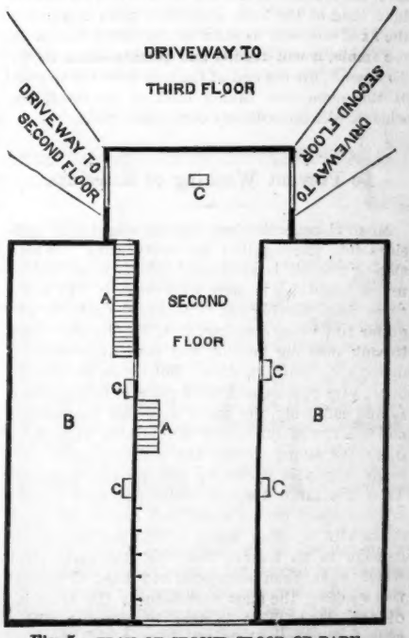


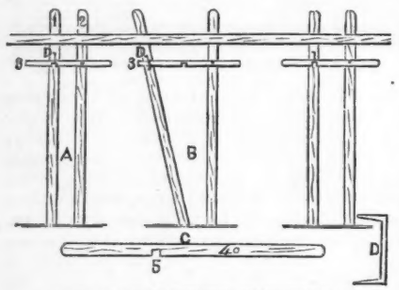
Fig. 5.—PLAN OF SECOND FLOOR OF BARN.

be provided, the cost of which, in many cases, would be very trifling indeed. The time to prepare

for a dry season is before it occurs, as it is too late to go to work when the need comes. The farmer who has the means of irrigating his meadows, is free from the painful apprehensions of the one who watches the clouds with anxiety, hoping for rain, or fearing a want of it. Fortunately, the necessary means are, in the majority of cases, easily and readily provided, and it should only need to awaken the farmers to the necessity for making the proper provision, to cause them to take measures to secure themselves against danger. Farmers can no longer plead a want of knowledge as an excuse for not turning to account such means of irrigation as their surroundings afford. The work on Irrigation, by Henry Stewart, and recently issued by the Orange Judd Company, is commended to those who would improve their farms by this means.

Method of Fastening Stanchions.

T. G., Halifax, Nova Scotia, sends a sketch of a simple contrivance for coupling cattle stanchions, and writes, after having tried some half a dozen different kinds of fastenings, that he put this one in operation in his stable, and finds it work very satisfactorily, being simple, cheap, durable, and effective. It consists of a piece of iron, *C*, ¼th inch in thickness, 1¼ inches wide, and 26 inches long, with a hole for a screw, and a notch; the hole and notch being 8 inches from either end of the iron. To fix it on the stanchion, screw it loosely on to the stationary stanchion, and run it through a square staple, *D*, (4 in. long), previously driven into the loose stanchion, (immediately above the head of the animal, but far enough away to prevent the head reaching it), so as to catch in the notch as in stanchion *A*. At *B* the stanchions are shown open; to shut them take hold of the loose stanchion, push it towards the fixed one, and as soon as the notch comes to the staple, it will readily and quickly catch itself. To open it, lift the end of the iron with the thumb, at the same time taking hold of the stanchion, when it will immediately come open itself.



METHOD OF FASTENING STANCHIONS.

To Prevent Washing of Hill-sides.

Much damage is done by the washing of hill-sides into deep gullies by heavy rains. Where sloping ground is cultivated this is unavoidable, unless something is done to prevent it. In some cases, deep plowing and loosening the subsoil, will go far to prevent washing, as it enables the water to sink into the ground, and pass away without damage, by slow filtration. But where the subsoil is not very porous, and when the rain falls copiously and suddenly, the water saturates the surface soil in a few minutes, and the surplus then flows down the slope, cutting the softened earth into many channels which by and by run together. Then the large body of water possesses a force which the soil cannot resist, and carries the earth down with it, often doing serious and irreparable damage in an hour or less. Of the many plans which have been suggested and tried to prevent this washing, the most successful is the terracing of the slope. This is done by plowing, with a swivel plow, around the hill, or back and forth on the slope, commencing at the bottom and throwing the earth downwards in such a manner that a flat terrace is formed, which has a small slope backwards from the front of the hill. When this terrace has been formed, the plowing is commenced ten or twelve feet above, and another terrace is made in the same manner. This is continued to the top of the slope. If thought desirable, the

PROFILE OF A TERRACED HILL.

inner furrows on each terrace may be made to form a water channel, and this may be connected with the channel on the next slope lower down, in some safe manner, either by a shute of boards or of stone, to prevent washing of the soil at these points where the fall will be considerable. This, however, is a side issue, which does not necessarily belong to the main work. The arrangement of the hill-side is shown in the engraving, in which the original outline of the hill, and the arrangement of the terraces, which are cut out of it, are shown. When a heavy rain falls upon the terraced hill, the effect will be to throw the water backwards from the outer slope, into the channels at the rear of the terraces; and there, as well as upon the broad surface of the terraces, there is abundant means of escape by sinking into the soil. If not, and the amount of water is too great to be thus disposed of, it may be carried down the slope, by arranging the furrows as drains in the way previously indicated. Hill-sides of this character should be kept in grass, when the slope is too steep for comfortable plowing, after it has been thus arranged; or it may be planted with fruit trees, vines, or timber, upon the slopes, leaving the terraces to be cultivated, or the slopes may be kept in grass, and the terraces cultivated. But in whatever manner the ground may be disposed of, it would be preferable to leaving it to be gullied by rains, barren, useless, and objectionable in every way.

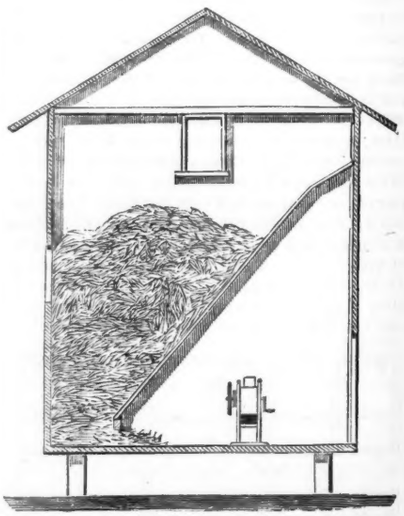
The Pig as a Manufacturer.

In the decline of the manufacturing interests, and the want of employment in the older States, let us not overlook the humble operative who always makes staple goods and sends them to a hungry market. He works upon coarse raw material, and manufactures pork, lard, and fertilizers, articles for which there is always a good demand on every farm, and a ready sale in the village markets. One effect of the large increase in the circulation of our agricultural journals has been to raise the price of fertilizers. The profits of cultivation are seen to keep pace with the use of fertilizers. The demand is especially lively in our large towns and their suburbs, where market gardening is followed, and more money is made from ten acres well tilled, than from many large farms. Six to eight dollars a cord is a common price for stable manure in these localities, but it is often much higher, and sometimes not to be had at all. In the flush times through which we have passed, many villagers ceased to make their own pork, and, even upon the farm, near good markets, it has been a question whether there was any profit in keeping pigs. In the olden time it was a main resource, and the corn-crib and the pig-sty were as indispensable as the barn and the cow-yard. The best manure made upon the farm was the contents of the sty. It made its mark upon the corn field, and the effects were seen for years after, in the oats and grass. After many years of experience with home-made manures and the manufactured article, we have come to the conclusion that no cultivator can afford to dispense with the labors of the pig as a manufacturer of fertilizers. It is the most satisfactory way of filling the pork barrel, and the lard keg, even if there be little economy in it. Swine pay largely in mixing and composting the contents of the barn cellar that receives the manure of cattle kept in the stables above. We have noticed this feature in the management of the most thrifty farmers recently visited. Pigs are kept at work from their birth to their slaughter. All refuse from the farm and garden goes to the barn cellar. Absorbents, in the shape of weathered peat and muck, head lands, swamp hay, salt marsh grass, sea weed, saw dust, leaves from the woods, were frequently added to keep the swine busy and to prevent all bad odors. The sty, which is so often a nuisance, by the use of absorbents, may be kept entirely inoffensive. The pigs not only thoroughly compost all this material thrown into the cellar, but by the tramping of their feet prevent excessive fermentation after it is mixed. The pig is especially valuable to the villager who is occupied as a laborer or mechanic during the day. He has his acre or two of land, his vines and fruit trees, which can be made to supply his table with comforts and luxuries the year round. The profit of his garden and fruit yard will depend almost entirely upon the free use of fertilizers. It is practicable to keep his soil in a high state of productiveness with fertilizers made upon the premises. If we made the most of our home resources to fill the larder, and store the fruit room, the times would not be so incurably bad.

Rat-Proof Corn-Crib and Shelling-Room.

BY J. W. P., WARREN CO., N. C.

Many unsuccessful attempts have been made to devise a corn-crib that would be rat-proof. In spite of every precaution, rats and mice would find their way to the crib, and once there, it has been difficult or impossible to oust them. I have a plan for my own use, which I have no doubt will commend itself to others, especially in the South. A crib that is inaccessible to rats, is an impossibility. Nine-tenths of the damage done by rats, is due to their nesting in the grain. Their depredations would be hardly noticable if confined to what they carried off. My plan effectually prevents nesting. Almost all Southern corn-cribs are built with upper and lower doors. When no more corn can be put in at the lower door, then the upper is used. Beneath this, a shelling-room is usually partitioned off, in which sacks are kept, and the corn shelled for mill. Instead of this square shelling-room, I have nailed slats three inches wide, one inch thick, and one-quarter inch apart, from the front plate of the crib, (which serves also for the sill of the upper door),



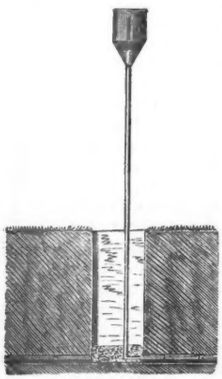
SECTION OF CORN CRIB AND SHELLING ROOM.

to within 18 inches of the rear wall, and ten inches from the floor. These slats run down, and are nailed upon strong supports. The crib, therefore, is filled at the upper door. With every removal of corn from the bottom, the whole mass moves down as in a hopper, and it is obviously impossible for rats to nest. There are no hiding places whatever, as the crib is made of slats and boards—not logs. There are several other advantages obtained by this

plan. A good, clean shelling-room is provided; the corn being always in motion, is well ventilated; when filled for the first time, it is easy to make a mark for every twenty-five bushels, and as the corn falls in the crib, one can see at a glance exactly how much is used; but the greatest advantage is the very decided saving from destruction by rats. My crib has a capacity of 600 bushels, while the shelling-room may also be used for the storage of short corn, which is soon fed out to fattening hogs. The corn is stored by the use of rope and tackle. The crib should be built high and of course must be wide.

How to Clear a Choked Drain or Pipe.

J. L., Lapeer Co., Mich., describes a method of clearing an obstruction, such as sediment, sand, or mud, from a drain. A pipe of tin is made with an angular elbow at one end, and a water reservoir at the other, as shown in the illustration. The drain being opened at any convenient place, the tin pipe is fitted to it, the junction being plugged, to prevent any escape of the water used. The water being poured into the reservoir, the drain will be flushed, and the obstruction washed away by the force of the current. This method may be effective in some cases, but very frequently a drain is obstructed in such a way as to require some force to remove the sediment or obstructing matter. The plan above described would then exert too little pressure to be of use. Having had occasion recently to open an obstructed drain, we procured one of Whitman's "Fountain Pumps," described and illustrated in the *American Agriculturist* for May, 1877, as applicable to other uses, this use not being mentioned. We found it, however, very effective, a stream of water being forced from a barrel brought for the purpose, into the drain, clearing it completely in a very short time. The advantage of being able to procure a very considerable pressure, if needed, or to force a continued and rapid stream of water into the drain, is very obvious. Either of these may be done with the "Fountain Pump," better than with any other simple contrivance known to us. If mud or sand has become consolidated in the drain, the stream of water may be thrown into it with sufficient strength to break up the mass and wash it away. It is well to take the precaution, in using force to clear a drain, or a water pipe, to drive the obstruction back in the way in which it entered the pipe. Water-pipes, or waste-pipes in a dwelling, that have become obstructed, may be cleared very readily with this force-pump.



CLEARING DRAIN.

PLANTING CORN IN DRILLS.—We are asked by a correspondent to name some farmers who have grown corn in rows or drills, instead of hills. The request is evidently made by one who doubts the value of this method of growing corn. That any person could doubt this, or confess not to know anything of so common a practice, even in the West, is a surprise. Corn grown in drills, and cultivated one way only, will yield one fourth more than an equally good crop grown in hills or check rows. The ground can be kept equally clean if the proper implements are properly used. No good farmer, who will keep his ground clean, should plant corn in check rows, and no farmer can afford now to plant by hand. This is a waste of valuable time, and a disregard of economy. In the East, drill planting is now almost universal, and is becoming very common in the West. A crop of 70 acres grown by a farmer in Kansas, who is personally known to us, and planted in drills 3 feet 8 inches apart, with seed dropped 8 inches apart in the row, yielded the past season over 5,000 bushels, which is far above the average of crops planted in checks.

A Good Jersey Cow.

On page 253 we give a picture of a Jersey cow, whose record certainly entitles her to the distinction of being represented in our gallery of portraits of noted animals. The cow, "Jersey Rosalee," Herd-Book, No. 1215, is owned by S. G. Livermore, of Cedar Rapids, Iowa, weighs about 700 pounds, and has the following very interesting record:

She dropped her first calf April 29th, 1870, at the age of 21 months and 4 days. In the first week of June she gave 23 pounds per day and made 7 lbs. butter. In the first week of November she made one pound of butter from 15¼ pounds of milk.

On June 3d, 1872, dropped her 3d calf, and from June 11th to 20th, inclusive, she gave 340¼ lbs. of milk, and made 20¾ lbs. of butter. Total amount of milk from June 11th to August 31st, 2312 lbs. Total amount of butter made from June 11th to to August 31st, inclusive, 136 lbs. From December 16th to the 23d, 7 days, she gave 84 lbs. of milk, with 14 lbs. of cream, which made 8 lbs. of butter.

In ten days in June, 1874, she gave 403 lbs. of milk, from which was made 25 lbs. and 3 oz. of butter; a yield of 1 lb. of butter from 16 lbs. of milk.

In ten days commencing June 11th, 1876, she gave 393 lbs. of milk and made 21¼ lbs. of butter. Through the month of July she gave 964 lbs. of milk. In August she gave 899 lbs. of milk.

On the 23d of May last, she dropped a heifer calf, and her yield is now over 20 quarts a day. The measure of her udder is 48 inches around, and 16 inches deep. This cow furnishes another instance of the value of the Jerseys for the butter dairy, a business for which a few single cows of other breeds may equal them, but for which they are excelled by no other breed of cattle.

Repairing Roads.

The repairs of roads annually cost a very much larger amount than ought to be necessary. This is the effect of our imperfect and wasteful system, both of constructing and maintaining them. Instead of a substantial and permanent highway at the first, our system is to make a simple earth roadway, rounded up at the center, and ditched at the sides, which is immediately cut up into ruts, so as to be practically impassable half the year for a properly loaded wagon. This road is then repaired, generally at the worst season of the year, with the worst possible material, and in the most imperfect manner. The cost is, on the whole, equal to the proper maintenance of a first-class road, which would be passable for heavy loads at any season of the year. The best material for road-making, that is, stone, is abundant in every part of the country, excepting some of the rich prairie States, and even in many western localities, stone may be procured at a reasonable expense by quarrying it. The machinery for reducing stone of the hardest character to a proper condition for "road metal," is both cheap and of the most effective character. Blake's Stone Crusher has been alluded to and described in the *American Agriculturist* as a most valuable machine for this purpose, and we are pleased to see, in many localities, the excellent roads covered with broken stone, showing that our advice and recommendations have been effective. There is, however, ample room for more, and every township, at least, should possess a complete outfit of crusher and steam-engine for road purposes. No more economical investment could be made, nor one that would pay a more valuable return, in money saved and labor and time spared.

There is another aspect in which the road question may be viewed. In the country, there are a great number of men, idle either by choice or necessity, who have to be supported at the public expense or by private charity. Many of these demand work, and a greater number demand alms, and decline work. Promiscuous relief has become a most vicious practice, tending to demoralize a large portion of the community, and to encourage persons to live by begging and without work. In those countries where a considerable portion of the population are idle and impoverished, for whatever reason, public provision is made for setting those who wander from place to place, "vagrants" in name and in fact, to some useful employment, that they may earn a subsistence and relieve the community from a burden. To refuse to help a starving man, is

Fig. 1.—HEAVY HAMMER FOR BREAKING STONES.

more than the majority of good people can bring themselves to do, but to refuse, when remunerative labor is offered and rejected, is only just and proper. If work were provided for all beggars and tramps, there would be little hesitation in refusing to help those who refused to work, and in time the present "tramp nuisance," which is an onerous tax and a disagreeable burden to farmers, and a constant menace to farmers' wives, would be got rid of.

The most appropriate work for this class of persons is repairing roads. This is the usual employment provided for them in European countries, and the scene depicted in the accompanying engraving is a very frequent one on the public roads there. Piles of stone, gathered from adjoining fields, are deposited here and there along the highways, and the stones are broken into fragments of proper size for making and repairing the roads. The illustration, fig. 3, next page, shows the manner in which the work is done, and the hammers used for breaking stone are given in figs. 1 and 2. This method might be introduced here in those places where it would not pay to use machinery for breaking the stone; and elsewhere, where machines are used, this sort of labor might be utilized in the repair of the roads. The work should by all means be done by the piece. That is, a pile of so many loads or yards of stone, may be given to break for a certain sum; and the piles may be made here and there, where the "metal" will be needed, and so that single individuals may be given separate jobs. Also, when the stone is crushed, it may be carted to the places needed, and spread at a given rate per yard for a regulated depth of covering. In this way, the work can be done without costly supervision, one road-master serving to overlook a long section of road, paying only for work that is actually performed, no

Fig. 2.—LIGHT HAMMER FOR BREAKING STONES.

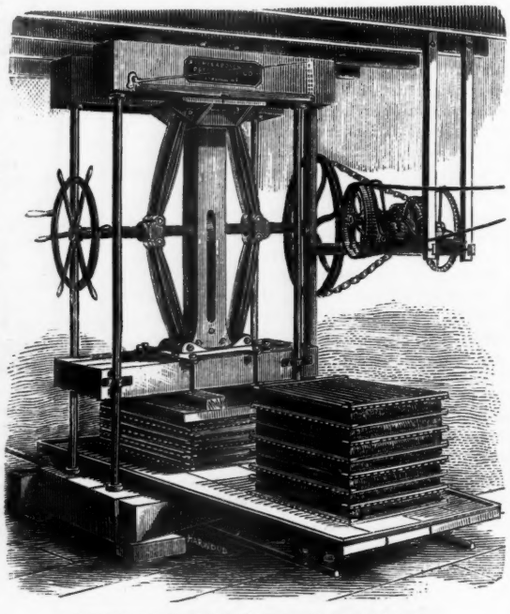
service as task-master or "boss" being necessary.

In giving a few points to be observed in repairing roads, we refer only to the use of broken stone. For depressions, or worn places, the old surface should be broken up with the pick and left loose, so as to bind well with the new material. No stone should be used that will not pass easily through a ring 3 inches in diameter. The stone should be free from earth, and clean, and if possible the surface should be rolled. Nothing is needed to bind the stone; the angular corners will soon interlock, and make a very compact and solid bed. No road should be repaired until it is dry. The surface of a road should not be too much rounded, a rise of 6 inches in 16 feet is sufficient; when greater inclination is given, there is a tendency for loaded wagons to slip sideways and work the material off to the sides. It would be an excellent thing for all, the roads, the wagons, and the horses, if wagon wheels were make with a broader tread than is usual. A tire 4 inches in width is not only less destructive to

the roads, but the draft of a cart or wagon is considerably less with such wheels than with narrower ones. The reason for this is, that as the broad wheels sink into the ground less, the traction is also less; when a wheel sinks into the ground, the draft is increased, as it has to overcome an elevation in front of it, or what is equivalent thereto. This may be proved by an attempt to move a loaded wheelbarrow on soft ground into which the wheel sinks.

Cider Making and Cider Presses.

One October day during the Centennial Exhibition, as we approached the Agricultural Hall, we found men engaged in spreading large squares of cotton cloth that were of different shades of brown. Thinking these had something to do with experiments with dyeing materials, we made inquiry and found that they belonged to a cider press that was in operation within the building. It took but a few minutes to look up the press that used the cloths, which we found to be one made by the Boomer & Boschert Press Co., of Syracuse, N. Y., which was not in operation just then. There are some machines that are so simple, and so well adapted to their work that they tell their own story at a glance. This press was one of these; its construction showed such a combination of mechanical powers that any one at all familiar with machinery would see at once that the machine was a most effective one: that an apple that found itself under its influence would be separated into "juice" on the one hand and pomace on the other in the most complete manner and in the shortest possible time. The press, as we there saw it, was of the form shown in the engraving. Very unlike this to the old-fashioned cider-press, many of which in the older States can be seen in various stages of decay. There was a great deal of the picturesque about cider-making in the old way. If it did not require a great deal of help, there was an abundance of help at hand, for the boys made it the occasion of a holiday, and older boys did not despise sweet cider. The massive grinder and more massive press, with its enormous, rather rude and always noisy screw; the laying up the cheese with straw; the jokes about wetting the straw; the odor of the ripe fruit and the very different odor of the soured pomace, were all accompaniments, which those who have



BOOMER & BOSCHERT'S POWER CIDER-PRESS.

Fig. 3.—BREAKING STONES FOR ROAD.—(*See p.* 259.)

participated in such a scene, on a glorious October morning, will vividly recall, though many years have passed. The old press made cider, and good cider—if the apples were such—but very slowly. As we stood before this machine we saw that the poetry had departed from cider making, as here was something that meant business—a very matter of fact affair, with not a particle of sentiment—but an awful amount of squeeze—about it. The machine here illustrated is for steam or other power, but smaller ones constructed on the same principle, are made to work by hand. It will be seen that the press is essentially of that form known as a toggle press, in which the power is produced by straightening a kneed lever. This power was long ago used in the printing press, and is now seen in various modifications in cotton, hay, and other presses. In this cider press the toggle is worked by a screw, and the combined forces of two important mechanical powers, the screw and the lever, are brought into play. In the press here shown the screw, is turned by power, and in the smaller ones by a hand lever. The makers claim that this combination "moves quickly at first, when a small amount of power is needed, but increasing power and decreasing in motion as the substance becomes more and more dense, until at last, when the greatest pressure is required, we secure it in the most marked degree." The press is accompanied by a grater especially contrived to reduce the apples as fine as possible. Another peculiarity of this press is in the use of strong cotton cloth to hold the pulp in laying up the cheese, and in the use of racks to facilitate the flow of the expressed juice; these are shown in the engraving. To insure rapid working, a double platform is used, like that in the illustration; while one cheese is under pressure another is laid up, and by means of a crank and gearing, not here shown, the fresh cheese is brought under the press, as soon as the exhausted one is removed. The cheese is 4 ft. 8 in. square, and the portion in each cloth 4 inches thick; the rise of the follower is 3 ft. Working at an ordinary rate, it is arranged to run down in an hour, 20 to 25 minutes are allowed for drawing and changing the cheese; at this rate seven pressings can be made in 10 hours, with an average of 12 barrels to the pressing, or 70 to 80 bbls. a day is given as its capacity. At the Centennial Exhibition the press bore the placard, "Ordinary capacity, 60 Barrels in 10 hours," a claim which was so frequently criticised, that the makers proposed a trial and announced that on Oct. 26th, "100 bbls. of cider would be made on this Press from 800 bushels of Apples in 10 Hours." The trial was made on the appointed day, under the supervision of gentleman well known in the agricultural world. The result was, that 116 bbls. and 22 gallons were made from 871¼ bush. of apples in 9 hours and 45 minutes. The names of persons residing in several different States, who have this press in use, show that it has been adopted by many of the leading cider and vinegar makers in the principal apple growing localities.

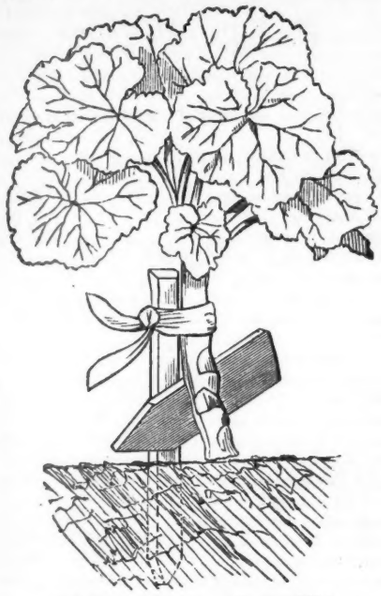
A Rustic Gate.

A farmer friend, who takes more than usual interest in horticulture, some time ago gave us a sketch of a rustic gate, constructed by one of his neighbors, and thought it deserving of publication. We have had the sketch engraved, but we fear it may not please our friend when he finds we have done so, if not for the purpose of showing others what *not to do*, at least to use it as a text for a few remarks on rustic work in general. There are places in which such a rustic gate may be appropriate, but it is not at the entrance to a farm, or at the approach to a large family residence or homestead. If a gate and gate-way are made conspicuous at all, then their expression should be that of permanence, and of dignity, neither of which are conveyed by the gate here shown. It if a great fault of much of the rustic work now made, in the minor articles of baskets, chairs, and seats, as well as in the more important structures of gates, pavilions, summer-houses, etc., that they not only do not look permanent, but are really slightly put together and frail. This remark does not apply to all rustic work, as some of the regular builders are very thorough in this respect, but in the work of amateurs, and in some of that found in the market, more thought appears to be given to the ingenious fitting of crooked sticks, than to the enduring character of the structure. There is scarcely anything about a place that gives more trouble by getting out of order, than a much used entrance-gate. Even when built with all the care that can be given to straight timber, and braced and bolted in the most approved manner, it often calls for repairs to the gate or gate-way. When it comes to the irregular forms used in rustic work, the difficulty of making a durable job greatly increases, and we have not seen a gate of this kind that did not soon become a nuisance. If one feels that he must build a rustic gate, then let it be put together in every part with bolts, and extra care be taken in the bracing, even to some sacrifice of "rusticity." Nor do we consider the flower-vases upon the posts as an example to be copied. In our climate plants in vases must be watered; here they are too inaccessible for convenient watering, and if at a distance from the house, the plants will be very likely to present, in August, an appearance very far from ornamental. While for a summer cottage, or some such locality, a rustic gate may be in keeping with the surroundings, we cannot advise any one to place it at the entrance to a permanent home. In well ordered communities, where cattle are not permitted to run at large, no gate at all, or one always open, is usually the rule, and a rustic affair only looks well when shut.

A RUSTIC ENTRANCE GATE.

Something About Alpine Flowers.

There are several works, English and French, devoted to Alpine Flowers, while a number of nur-



A GERANIUM CUTTING.—(*See page* 263.)

serymen in Europe, and a few in this country, have lists of plants classed as Alpine. That some of our cultivators are interested in the subject is shown by letters asking "what are Alpine Flowers?"—A very brief answer to these would be—"flowers of the Alps, or of those mountains sufficiently elevated to be classed as alpine." This definition would not quite meet the case, for if one looks into the catalogues of Alpine Flowers, in some of the elaborate European works on these plants, he will find those that do not grow on high mountains at all, or if they do, are found much more abundantly not far from the sea-level; such, for example, as the common and beautiful Bluets, figured last month, and the curious Lady's Slippers—or Cypripediums, referred to and illustrated in Doctor Gray's article in the same number. In a geographical classification of plants, there are certain species found only at high elevations, near the limits of perpetual snow; these plants, which in the Alpine regions of Europe are found at an average elevation of about 600 feet, are properly called Alpine. The elevation at which these or their relatives and representatives will be found, as we go South, will vary greatly, and the parts of the Andes and the Himalayas, occupied by a similar vegetation, will be some 12 to 15,000 feet. Then, as we go northward, we find that the same or similar plants are found on low mountains, or what we should call hills, and when we approach the Arctic limit of plant life, the general vegetation at the sea-level is in part the same as, or composed of plants closely related to, those found on the European Alps. But in our horticultural grouping, (it can hardly be called classification), of plants, we do not follow that of geographical botany. In the catalogues of cultivators and the books on cultivation of Alpine plants, all are included that bear a general resemblance in manner of growth and habit to the plants that are geographically Alpine. Then to get at the meaning of the term Alpine, as horticulturally applied, we must know what are the peculiar characteristics of the plants found in the proper Alpine regions.

Botanical description will not avail here, as the Alpine plants are, mostly, of the same genera with those which grow at lower altitudes, and it must be some common features of habit and growth, which, adapting them to a life in a peculiar locality, makes them different from other plants and mark them as distinctively Alpine. The most concise and sensible characterization of these plants that we have met with, is that given by Verlot of the *Jardin des Plantes*, in his "*Les Plantes Alpines*," a most elaborate and beautifully illustrated work, and one which has been largely used, though seldom *quoted* from, by various English writers on these plants. M. Verlot says that the "distinctive characters of Alpine plants may be summed up as follows: *Their Roots* are deeply implanted in the soil, mostly very branching, and in most cases, greatly exceeding in length, the stems of the plants to which they supply nourishment. *The Stems* are very short, even in the woody species, and in these they are often bent and rooting. *The Leaves* are usually reduced to the smallest size, rarely smooth, sometimes odorous, more or less hairy or rough, and with a disposition to grow in the form of a rosette, and finally: *The Flowers* are often sessile, (short stemmed or no stems), of varied or uniform colors, which are always very lively." Such being the characters of the true Alpine plants, in cultivation we add to them other, but low-land, plants which resemble them in these particulars, and a garden collection of Alpines will include a variety of low growing, small leaved plants of compact form, with large and showy flowers, or, if the individual flowers are not large, a great profusion of smaller flowers. The question will occur to the amateur, can we cultivate in our gardens these interesting plants, which mostly belong to elevated localities? So far as the climate of England is concerned, the answer would be—yes; but in this country more unfavorable than England, by as much as that country is more unfavorable than the Alps, the answer must be modified. We will say that with proper care, a large share of the Alpine plants—a much larger than one would at first suppose—may be cultivated even in our unforbidding climate of the Atlantic States, in part upon specially built rock-work, and in part in the open border. Leaving for another article the question of rock-work, we will consider

Fig. 2.—THE ALPINE TOAD-FLAX.—(*Linaria alpina.*)

Alpine Plants in the Open Border.

It has often been stated in these columns that

Fig. 1.—STEMLESS GENTIAN.—(*Gentiana acaulis.*)

many plants usually regarded as tender, could, with proper care, be made to survive our winters. So with Alpine plants; many of those which naturally grow only in elevated regions, or in conditions unlike those of our gardens may be made, not only to live, but to grow in the open border. Verlot, quoted above, states that one of the characters of Alpine plants is, to have deep-growing much branched roots, often exceeding in length the above-ground portion of the plant. It is upon the observance of this character that much of our success with Alpine plants will depend. Every care must be taken with the roots. As we do not propose, at the present time, to write a treatise upon Alpine plants, we will merely confine ourselves to this point. To have success with these plants, however they may be obtained, from their native localities, from the collections of nurserymen, or from seeds, (seeds sown in pots being an excellent method), the chief care must be for the roots. It is not our hot suns upon the foliage that kills Alpine plants, for in their native localities they have for a while, at least long enough to kill the leaves, a very intense sun, but all the while their abundant roots are far down beyond the reach of this influence. Therefore, those who would grow Alpine plants in the border, must provide, firstly, a deep soil, and secondly, a mulch to prevent evaporation. A bit of practice will give a useful lesson in such cases. Several years ago one of our associates went on one of those, so-called,

editorial excursions to Colorado and Utah, (the real object of which was to extend the advertising business of a, so-called, religious journal.) Our friend, when practicable, sent us home by mail, all the plants, especially Alpine ones that the rapid movement of the menagerie allowed him to collect. These plants—mostly roots, with their leaves removed, were placed in a shady place, in common soil, and the surface well covered with *small stones!* The stones were in bulk from that of a hazel nut, up to that of a hen's egg, but being from a shaly locality, were flattened rather than round in shape. Care was taken in placing the stones around the crowns of the plants, and the general surface covered two inches deep. As a consequence, nearly every plant lived, though some that could only be at home on the margins of streams of ice-water, failed to last, yet the general success was most gratifying. We would suggest this plan of mulching with stones to all who set out Alpine plants, or any others, in which the fibrous roots are large in proportion to the rest of the plant; it more nearly comports with the natural localities of Alpines, and for others it is better than any other form of mulch. As an illustration of the success of an Alpine plant under adverse circumstances, we may mention our own with the Stemless Gentian, *Gentiana acaulis*. This plant, (fig. 1.), is a native of the Alps, where its low herbage often forms patches of wide extent, and in the blooming season is hidden by flowers very large in proportion to the size of the plant, so large that they often hide the plant, and of a blue so beautiful that no description will give a proper idea of the color. A few years ago, in ordering some plants from an European nurseryman, we added a half dozen of *Gentiana acaulis*, as that was in his catalogue. We supposed that by potting and shading, we might chance to get it to flower, at least for once. When the plants came, our Stemless Gentian, which had been put in as good-sized clumps, appeared in a most unpromising condition. The leaves were yellow, and there was a general failure apparent everywhere. We had the plants put in a reserve bed, and thought no more about them. Some two years after, it was reported that *Gentiana acaulis*, was about to bloom, and we found that two or three of our dead-looking sods had lived and recovered, and each was a small mat of pleasing foliage, with several of the large, inexpressibly beautiful, blue flowers about to bloom. Here was an Alpine plant that, out of mere disgust, was put in a soil in which one would hesitate to plant a respectable tomato, establishing itself in spite of adverse circumstances. For many Alpine plants, the best way for the amateur, if he cannot afford to purchase plants outright, is to raise them from seeds. Most of the seed catalogues offer several kinds, and others may be readily procured from Europe. The seeds are to be sown in pots, covered thinly, kept in a moderate heat, and when the plants are large enough, they are pricked off, four or more in a pot, according to size, and they can then be transferred to the open ground without disturbance of the root; even in the case of plants from the seeds, we should prefer to put around them a mulch of stones. In a recent visit to the grounds of Woolson & Co., Passaic, N. J., we saw a number of instances in which plants regarded as peculiarly Alpine, as well as a host of others, not classed as Alpine, but treated the same, had been raised from seed. A row of Alpine Toad-flax, *Linaria Alpina*, (fig. 2.), was especially showy. This is a truly Alpine plant, which, on the high elevations of the Alps and Pyrenees, attracts the tourist by its bright little tufts, not more than an inch high, was as much at home as if it had never known of any ground more elevated than that of W. & Co.'s garden. As grown there—the seeds having been sown under glass, and the young plants put out in the spring of 1876—it made a most beautiful show. The plant itself was attractive for its silvery-tufted foliage, and the very numerous flower-stems were clothed with violet-colored flowers, of the form shown in the engraving, each with a center or "eye" of the brightest orange. We learn that these plants passed the winter perfectly well under the ample cover of snow, which came before the intended mulch could be given them. These examples show that some, at least, of the Alpine plants, may be enjoyed in the ordinary garden border. To the zealous amateur, the few obstacles to the culture of these plants, will only serve to stimulate him to endeavor to overcome them; we cannot have *all* the truly Alpine plants in our borders, or even on our rock-work, but we can, by a little painstaking, cultivate a good share of them even in localities very unlike the high elevations in which they form the whole vegetation.

The Colorado Spruces.

BY PROF. C. S. SARGENT, DIRECTOR OF THE ARNOLD ARBORETUM, OF HARVARD UNIVERSITY.

The three Spruces of the Rocky Mountains, Douglas's, Menzies', and Engelmann's, botanically known as *Abies Douglasii*, *A. Menziesii*, and *A. Englemanni*, seem destined to take such an important position as ornamental trees in the northern portions of the United States and Europe, that some account of them at the present time will be interesting, and will, I hope, help to make them better known to nurserymen and planters generally. *Abies Douglasii* and *A. Menziesii* have been in cultivation for half a century, having been introduced into England from seed collected in California and Oregon, by David Douglas, a celebrated Scotch botanical traveler, whose labors and untimely death in the pursuit of his profession, the Douglas Spruce will always recall to botanists and lovers of coniferous trees. Although these two trees grew well, and soon became popular in England, all efforts to introduce them into our extreme Northern States failed, or practically failed, as after a few years, more or less, some unusually severe winter had killed all that had been planted, and it seemed settled that our plantations must be made without reference to these really fine trees. But in 1862 Dr. C. C. Parry, to whose indefatigable journeyings and researches are due the solution of so many of the botanical problems of the Western Territories, visited the Rocky Mountains of Colorado, and sent from there seeds of these two trees to the Botanic Garden of Harvard University. From this seed a large number of plants were raised, which, with a view of testing their hardiness, have been widely distributed through several of the Northern States, where they have stood the trial of the last dozen years, and many of them, too, very trying years to plant-life, without, so far as I have heard, a single one, whether planted on the most exposed situations of the New England coast, or in heavy clay soils in Pennsylvania, having been injured in the slightest degree. As a plant is generally more susceptible to injury from cold or drouth during the early years of its life, and as our plants have passed through these first years so successfully, their perfect hardiness and adaptability to the soil and climate of the Eastern States must, I think, now be conceded.

But why, it will be asked, are these Colorado trees hardy, when the same species had, up to a dozen years ago, proved so unsuited to our climate? The reason for this apparent anomaly is obvious, if we take into consideration the fact that individuals of the same species vary to a remarkable degree in their power to adapt themselves to various conditions of temperature, and that the power of an individual to withstand cold, increases in proportion to the distance at which its seed-bearing parent is situated, either from the Equator, or above the sea-level. Or, in other words, our two Spruces are perfectly hardy in New England, the seeds from which they were raised having been collected at an elevation of some 8,000 feet, while plants of the same species, raised from seed collected at comparatively low elevations near the Pacific coast, have almost without exception, proved too tender for this climate. The Douglas Spruce, which botanically is closely allied to the Hemlock of the Eastern States, and which, though coarser and less graceful, it somewhat resembles, extends through California and Oregon, as far north as Sitka, and in the Rocky Mountains from New Mexico northward, growing to an enormous size on the Pacific coast, where, in favorable situations, it often attains a height of from 200 to 300 feet, with a diameter of trunk of from 10 to 15 feet. In the Rocky Mountains, however, its average height is hardly above 80 feet, and its growth there is slower and less productive of valuable timber. But it is as an ornamental, and not as a timber tree, that we are now considering this species. As such, few coniferous trees surpass or even equal it, for it has thus far retained in cultivation (and some of the first trees planted in England are now over 100 feet high), its lower branches, and close, dense pyramidal habit; and in this it contrasts most favorably with such trees as the Norway Spruce and many of the Spruces and Silver Firs of the old and new world, which, however beautiful and thrifty in their young state, become either naked and unsightly skeletons, or destitute of lower branches, long before they have reached half their full development. For this reason, the Douglas Spruce should be selected in preference to any other tree of which, in cultivation, I have any adequate knowledge, where it is desirable to plant a tree of pyramidal habit, which not only is beautiful in its young state, but which will improve for generations.

The second of our species, *Abies Menziesii*, in favorable situations, attains a hight of 100 feet, and has nearly the same geographical range in North America as *Abies Douglasii*. It also, under various names, extends through Kamtchatka and the Amoor country, to Japan. In the Rocky Mountains, this tree is found at an elevation of from 6,000 to 9,000 feet, and never forming extensive forests, as do many coniferous trees, but scattered widely here and there, and always in low, wet situations, generally along streams at the water's edge, where its roots are constantly kept cool and moist by the mountain torrents. This natural selection of a cool, moist soil, indicates under what conditions this tree can be most successfully cultivated. According to Dr. Parry, *Abies Menziesii* is, in the Rocky Mountains, a tree of rather an oval outline, pointing upwards with a rapidly tapering trunk. It has a thick, gray, rough bark, and its leaves are remarkably broad, stout, and very sharp pointed; indeed, so harsh are they that it is painful to grasp one of the branchlets with the naked hand, and by this peculiarity the species can be most readily distinguished while young, from several other Spruces which, in their early years, have certain points of resemblance.

The young plants, although of rapid growth, are remarkably compact and beautiful, especially those of them (about 20 per cent in our seedlings), which are of a bright, bluish-gray tint. In fact, these young "Blue Spruces," as cultivators are beginning to call them, are the most beautiful and valuable hardy conifers for this climate I know. Still, it is only in its *young state*, probably, that this species will make a desirable ornamental tree, as it has been observed that, when growing naturally, the bluish tint disappears from trees over 30 feet high, while, long before its full development is reached, loose, unsightly branches, nearly destitute of foliage, take the place of its early compact habit. This comparatively early fading of beauty is less objectionable, perhaps, in an ornamental tree in this country, than in almost any other, and is quite compensated for, in this case, by the superlative beauty which graces its early years. As a hedge plant for this climate, *Abies Menziesii* presents qualities possessed by no other plant, and when it becomes, as it should before long, as common and cheap in our nurseries as the Norway Spruce, it will be used for this purpose in preference to that, or any other evergreen.

Abies Englemanni, the third of the Colorado Spruces, is the most alpine in character, forming in the southern Rocky Mountains vast forests above 8,000, and reaching even 11,500 feet above the sea-level. This tree forms a shapely, tapering spire, from 60 to 80 feet high, with a trunk slender for its hight, and which is covered with a thin, scaly, reddish-gray bark. In general appearance *A. Englemanni* resembles the Black Spruce of Eastern America, for which it was mistaken by all botanical travelers in the Rocky Mountains, until Dr. Parry detected its specific distinctions, and dedicated it to the distinguished botanist, whose name it bears. Of its merits as an ornamental tree, I can not as yet speak with so much confidence as of the two trees al-

ready mentioned, as material for a satisfactory trial has not been available. But, probably, its resemblance to one of the common trees of the East will work against its general popularity, while its alpine character, and consequent habit of starting to grow in very early spring, will render it unfit for cultivation, save in the extreme Northern States. In St. Petersburg, as I am informed on the best authority, *Abies Englemanni* succeeds perfectly, in spite of the extreme cold of the Russian winters, and as heretofore the only conifers available for planting in northern Russia, have been the Scotch Pine and the Siberian Spruce, its general introduction there is considered of the greatest value and importance. By far the most valuable of the Colorado Spruces, as a timber tree, and the equal in this respect to the Black Spruce, it is not improbable that Englemann's Spruce will some day form an important element in the formation of artificial forests in Northern Europe.

Notes from the Pines.

If you who sit at Editorial and Publishers' desks at 245 Broadway, would see "a sight to behold," make an excursion to "The Pines," and I will show you a "thing of beauty," which, if you love trees as I do, shall also be to you a "joy for ever"—at least so shall be the memory of it. What a pity it is that people who have a place in which to plant trees—often people of abundant means, do not appear to know how many

Beautiful and Hardy Trees

there are besides the Maples, the Elms, the Horse-chestnuts, and a few other things that every one plants. I do not know whether the nurserymen are to be blamed for not telling tree-planters of these trees, or if those intending to plant insist on having just such trees as are in their neighbor's grounds. Be the fault where it may, the fact is painfully evident to those who go much about the country, that there is a wonderful sameness in the tree-planting. With a few rare exceptions, one place is like another in the kinds of trees, not but what the kinds are good enough in themselves, but one does not want *tonjours perdrix*, even if partridge is good eating. How rarely do we see a good specimen of that finest of trees, the American White Ash!—How seldom that most picturesque of all, the Weeping Beech, or that embodiment of lightness and grace, the Cut-leaved Weeping Birch! Still more rare than either of these, is the prime favorite I have asked you to come and see,

The Yellow-wood, or Virgilia,

as most of the catalogues have it. Michaux referred it to *Virgilia*, a South-African genus, but Rafinesque, finding that it differed from that in important particulars, gave it the name of *Cladrastis*, which, though no one knows what it means, exactly, is the accepted botanical name. Come and see my tree, and you will not care whether I call it by its proper botanical name, *Cladrastis tinctoria*, or by the incorrect one, still kept in the catalogues—*Virgilia lutea*. You will say that there can be nothing handsomer in the way of a tree, and that by "any other name" it would be as fine, and when in flower would "smell as sweet."—"Beautiful," you will say, and "why do not others plant it?"—you will ask, and I cannot answer you. I have hammered away at this and a few other trees, and tried to popularize them these many years, and expect to keep on doing so (if life is spared) for many years to come. The leading nurserymen will tell you that they keep the trees, but people will not buy them; they will sell 1,000 Maples, while 50 Virgilias get overgrown and must go to the burn heaps. A few years ago I was at a gentlemen's place, and was asked if I would take some Virgilias. His large tree fruited abundantly several years ago, he sowed the seed, and had young trees 3 or 5 feet high, by hundreds. He couldn't give them away, because people didn't know them; he wanted the land, and the whole lot are now ashes. Look at that tree, and think of burning it! What a fine-rounded head, what clean ample foliage of a most satisfying green, as you see it between the fringe of flowers! the flowers too, slender, graceful clusters, of a white as pure as the snow, and the fragrance just that which makes you wish for more, and never cloying! I know of but just one fault the tree has: if you set it out in the morning, it will not bloom that same afternoon. In other words, it is a rather slow grower while young, and takes time to get established. Mine is now (I think) eight years from the nursery; it has given a few flowers for the past two years, but this is its first year of real fullness. It is full, and worth waiting for twice eight years! The impatience of our people is amusing; if told that a tree is to flower, flower it must, then, there, and abundantly, or they will not wait, but take something that bears no flowers (at least no showy ones) at all. It is rather discouraging, but I shall continue to speak of this and other trees, as well as such humbler plants, as I find commendable, feeling sure that even the hardest stone will be worn by the constant dripping....One who would keep the run of any special branch, must have all the leading journals and books devoted to it. In trying to keep myself "posted" in European horticulture, I have ordered numerous works, as bills are read in Congress, "by their titles." I have somewhere stated that I never found a work on horticulture so abjectly poor, that I did not find in it somewhere, a hint or an idea that was worth all the volume cost. I fear that a late importation will induce me to revise this opinion. I ordered, by the advertisement, several new horticultural works, the most showy and pretentious of which was

"The New Practical Window Gardener,"

By John R. Mollison. This, a small 12mo. of 204 pages, contains about half a dozen full page colored illustrations, the most *chromatic* of chromo-lithographs, of the most impossible of window gardens. One might imagine such—indeed it has been done here, but mortal eye never beheld anything of the kind. The rest of the work is crowded with wood cuts, and reminded me of a work published a few years ago in this country, in which almost every engraving from journals and dealer's catalogues was pressed into the service and the text written in job lots to match. The English journals, usually so lenient with their own writers, describe the matter as "sound, but not new."—I know of no better word to describe it than "Humbug."....Another work in the same lot called "The Children's Garden," contained 166 pages, of which 40 (*Forty!*) were advertisements of other works by the same publisher. This may be all fair, right and honest, but to make one buy a book of which almost one-fourth of the pages is the seller's advertisement, is rather tough....By far the most important of recent works on horticulture is

"Cultivated Plants, Their Propagation and Improvement,"

By F. W. Burbidge. It is a large 12mo. of over 600 pages. I had known of Mr. B. as an occasional writer for the English Horticultural Journals, and as the author of a not very remarkable work called "Domestic Floriculture." This later work on Propagation received such high praise from the English journals, that I awaited the arrival of our copy with no little impatience. Over 160 pages are devoted to Hybridizing and Crossing, and it is but fair to say that this is the portion of the work that has been specially commended abroad, as bringing together the latest views on this important subject. The rest of the book takes up—or proposes to take up, the cultivated plants by families, but the most important plants in many of the families are unnoticed. I shall be surprised to learn that this is a fair exposition of the present state of knowledge and practice among English propagators. None of the rapid methods and peculiar expedients to meet particular cases, so common among our florists and nurserymen, seem to be known to the author. Of course the work contains much that is useful, and is more satisfactory than Carrières "*Jardinier Multiplicateur*," but it will fall far short of telling the amateur all that he wishes to know, and there is yet room for a comprehensive and practical work on propagation, suited to this country, where the conditions are so different from those abroad. In the mean time, until the desired work comes to his aid, let the amateur remember that

Every Plant can be Multiplied Somehow,

and that patient and intelligent experiment will at last find out the secret. Some plants can only be propagated from seeds, others, of which the cuttings of the stems root with difficulty, or not at all, grow readily from pieces of the root. The difference of a few days in the ripeness of the stems used for cuttings, (or grafts), will lead to success or failure. Sometimes the only way in which a plant can be managed, is to graft a portion of the stem upon a piece of its own root. These examples are sufficient to show that there is no regular routine to be followed, but that to be a successful propagator, requires no little ingenuity and skill. As an example of the expedients to which ingenious gardeners resort, the bedding geraniums may be cited. These, when set in the open ground, make a great growth after the severe heats are over, and afford an abundance of cuttings, but these, having grown rapidly, are very succulent, and if put into the cutting bench in the ordinary way, would decay before they rooted. To overcome this, and prepare the cutting, Mr. Peter Henderson hit upon a plan that worked capitally; instead of taking the cutting off at once, he cut the shoot half through, or tongued it. This checked the further growth of the shoot, caused the wood to harden, and a callus to form at the cut surface; in a few days the cuttings were ready, and when treated in the usual manner, formed roots at once. This little discovery was worth hundreds of dollars to Mr. Henderson, but instead of keeping it to himself, he, like the progressive horticulturist that he is, gave at the time a full account of it, illustrated by an engraving, in the *American Agriculturist*. The same trick may be played upon other soft-wooded plants as well. I have used successfully another method with geraniums and similar cuttings, which I saw in some journal, but have forgotten where or I would give credit. When the wood is very succulent, and there is danger of decay, the cutting is tied to a stick, and this is put into the sand so that the base of the cutting barely touches it. To prevent a close contact between the cutting and the stick, where moisture might remain and cause decay, a peg is placed between the two. The arrangement is shown in the accompanying rough sketch, [See engraving on p. 261]. Of course this can only be successful in the moist atmosphere of a propagating house....Probably almost every one has seen the old way of propagating the Oleander by

Rooting Slips in a Bottle of Water;

a cutting six inches or more long, has its lower leaves removed, and that portion immersed in a vial of water, which is hung up in a warm place, and the water replaced as it evaporates. In a shorter or longer time, according to the condition of the cutting, roots will form in abundance. It is well known that this is the readiest method for multiplying the Reed, (*Arundo Donax*); and other plants may be treated in the same manner; Roses, Grapevines, Willows, etc., will root in water, and it is said that cuttings of the Tamarisks strike more readily in it than in the usual way. The method seems to be attracting some attention among French horticulturists, and I was quite surprised to see a correspondent in a recent *Revue Horticole*, advise it for Begonias, the cuttings of which are so succulent that one would think they would decay quickly. Experiments of this kind are very interesting to the amateur; of a similar character is what is called "saucer propagation," very popular a few years ago, in which cuttings were placed in a saucer of sand which was kept very wet—thin mud—and set in full sun light. Cuttings root readily so treated. But there is one difficulty with cuttings struck in water or very wet sand; the roots are succulent and tender, and unless handled with great care will be lost when potted and in contact with the soil.

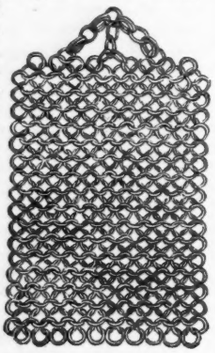
Though these methods seem very attractive from the ease with which roots seemed to be formed, the extra care they require afterwards more than offsets any advantages. Some cuttings root very readily in wet sphagnum; indeed any inert medium that will hold the proper amount of moisture may be used, and pure sand has been found the best.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

An Iron Pot Scrubber.

The cleaning of pots and pans is a work that housekeepers would gladly avoid if they could. Pots must be cleaned, however, and to save the finger nails, chips, spoons, knives, and other substitutes are used. In some parts of the country, a pot-scrubber made of iron rings, as shown in the illustration, is used, but it is by no means so well known as it ought to be, as it serves a most excellent purpose. It is shown as it appears when spread out; but when taken in the hand may be gathered up, in the same manner as a piece of cloth. When anything sticks to the pot or other utensil, or has been burned to the bottom of it, a little hard rubbing with this scrubber quickly removes it; and when the pot merely needs rinsing, the scrubber may be loosely rubbed around a few times. We do not know who the manufacturer is, but as the scrubber is kept for sale at some of the hardware stores in the city of New York it can be procured by any retailer of hardware or house furnishing goods throughout the country, if it is only inquired for. Its cost is 25 cents.



WIRE DISH-WASHER.

A Home-made Toasting Fork.

A fork that will hold bread, cakes, muffins, or even chops, steaks and slices of bacon, that are to be toasted, before a fire, may be made of any refuse piece of tin, as the bottom of a sardine box, or the side of a fruit can. A piece of tin of convenient size, 6 to 8 inches long, and 3 to 4 inches wide, for instance, is flattened out; the corners are cut off, and the edges are turned up as shown in the engraving; this is done to make the tin stiffer, so that it will hold its shape. Three angular pieces are

HOME-MADE TOASTING FORK.

then cut, and bent up as shown; and three wires are fastened into holes, and then twisted to form a handle by which it is held. It is best that the three points should be turned up a little so that whatever is placed upon them may not slip off easily. This is a little useful thing for the boys to exercise their ingenuity upon, as it can all be made with a jack knife and a sharp pointed nail with which to punch the three holes for the wires of the handle.

Home Topics.

BY FAITH ROCHESTER.

Tending Baby.

Now here is Grace with her first baby; and somehow she has to "tend" it a great deal. Don't you believe that she "has to"? But the baby worries if he is not taken up when he feels like it, and if he is neglected long, the worrying usually turns into hard crying. "What of that?"—Oh dear! If you have not been "through the mill," either as mother or as sympathizing friend, please don't speak in this meeting. We don't care to hear about Indian babies, strapped to a board for hours at a time, sucking a bit of sour bread or raw meat. Our children do not inherit the fortitude of the Indian character, nor the robustness of the Indian constitution, and no single-handed efforts will bring individuals of the Anglo-Saxon race to an equality with American Indians in these respects.

Grace is a woman of good sense, tender in heart and in judgment. She wants to do the right thing by that baby. Friends advise her not to tend the baby too much—teach him to take care of himself, as far as possible, and Grace herself resolves to do this. But if the baby, after his short nap (for he does the bulk of his sleeping at night), and a little season of quiet and happy open-eyed meditation, announces in baby language that he would like to sit up now—why, isn't it fair that somebody's loving arms should support the frame whose bones have not yet grown strong enough to support it? Human beings were not made for a steady horizontal position, and young babies have a right to lie up over their mothers' shoulders, and look at the world as others see it, and to find how it seems to sit up, safely supported by a loving arm and breast.

But, presently, the baby worries again, and it is not hungry and has no other apparent cause of complaint. It continues to complain, making every body in its vicinity more or less uncomfortable. Since the baby cannot explain its troubles, and since there are in human experience almost infinite sources of discomfort, it is quite fair to try to discover what ails the baby, and so relieve it.

I have tried to give baby's side of the subject. But now, how shall parents protect themselves against infant tyranny?—How can the little ones be early taught to know their place and not encroach needlessly upon the rights of others?—If I could, I would inquire of the mother of John Wesley, who is noted for this, among other things, that she never allowed a child over four months old to cry aloud. How *did* she manage it? And she had—was it eleven children? or was it fourteen? I am unable to believe the story about her babes not crying aloud.

Well, mine do; and so do yours. Some babies can be turned off more than others. Perhaps they are less social, perhaps less selfish and exacting—these babies who take everything good-naturedly. Perhaps they are simply healthier. There are little children who, by the time they can talk, seem to have gained a complete mastery of their parents, and the only way to have peace—a wretched peace indeed!—is to let them have their way in everything. This is a most deplorable state of things, but it is not always the result of parental imbecility. Sensible people sometimes find themselves the natural guardians of babes with so nervous temperaments, and so mountainous wills, that it seems extremely difficult to establish proper government.

No very definite advice can be given to meet such cases. A baby's rights must be respected. The helpless little creature has a right to smiles and tender words, and help about its exercise and self-education. But it ought to learn some self-reliance. Sooner or later it must submit to have its wishes crossed. We find how much easier it is for a baby to lie in its crib, or sit on the floor, or in a high chair, and amuse itself when it sees other persons busy at work. It does not seem to understand that sewing, or other sedentary employments, are necessary occupations for mamma, if she is much engaged with house-work. While she is going about the house with broom, or dish cloth, or ladle, baby employs and amuses itself as best it can, but when the work is done up, and mamma sits down to sew—now is baby's chance! And why not? But the sewing must be done! Alas yes. I wish mamma could take the baby out in the garden, and not know of a single thing that she ought to be doing, except to have a good time with baby for two or three hours every day.

It is painful to see how persistently many people educate self-consciousness in little children. They give such over-doses of pity for all its little woes! Better to cheer it than to pity it, when it mourns. Indifference to its real troubles is cruel and unlikely to educate the tender Christian graces in a child, but I am sure that the unconscious motive of the "poor baby,"—"did they 'buse it?"—"well, they shouldn't!" soothing doses, is to make the baby delight in feeling its importance in the circle, and take a natural, but not ennobling pleasure, in exciting the compassion of others. Kiss the bruised portion; rub the aching spot; let the little one feel that you love it and wish to do it good; but try to interest it in something *outside of itself*. I confess I hardly expect to see a single American child brought up after this plan in my day and generation, but this has long been my theory. If one parent pursues the sensible course, perhaps the child's other parent, or some grandparent, or aunt, exclaims pityingly at every fall.

It is poor policy to teach a child to be almost always in motion, trotting, rocking, jumping, rolling in a carriage, or carried about in some one's arms. When the wee bit baby grows uneasy, see whether a simple change of position will not answer as well as rocking it. Some babies will not sleep at all, night or day, unless rocked. Some babies must have also a regular *din* set up to drown out their cries and stupify them with astonishment, until they sleep. I even knew of one who required not only a din, but a real dinner—bell! At last it could not be got to sleep without having a big dinner-bell rung above its head. Remember this, when you begin the practice of putting the baby to sleep with instrumental music, or any noise, except soothing lullabys. Perhaps it *is*, as many say, the best way to teach babies, from the outset, to go to sleep alone in their little cribs, without any attention except putting them there, but I frankly confess that I should not like to have missed the pleasure of sometimes rocking my babes to sleep in my arms, to lullaby singing of my own heart's making. "It takes time," they say. Dear! Dear! What do women want time for, if not for the sweetest of womanly pleasures? Because I believe in a good God, I am very sure that in some good time coming all mothers and babies will yet have a fair chance and a good time in this world. Until then, women and babies must simply do the best they can.

Letting Babies Cry.

The foregoing topic is unreasonably long, I know, and yet I did not speak of one important consideration in tending a baby. I have been asked whether I did not believe that babes would soon cease to cry, unless in pain, if their calls were usually disregarded. Very likely they would, but how are you to know whether an infant is is pain or not? It would be simply cruel to leave it to suffer unhelped if it were enduring pain, or only discomfort, which you could relieve. Even if you suspect that its cries result from temper alone, you can not be sure of it, if the child can not talk; a severe paroxysm of crying may result in long and anxious parental inquiry and experimenting with infant trusses of one kind or another, together with the necessity of using almost any means, rather than to allow the injured child to cry hard again. All this is matter of quite common experience, in the world as we find it, as they should know who talk dogmatically about letting little babies "cry it out and learn once for all who is master."

In a very interesting Autobiography, published a few years ago, we are told how the author's mother, by his father's advice, let him sit upon the floor, a babe of six months, and scream out his rage over necessary denials of his wishes, time after time, until he was cured of such folly. Perhaps if only rage possessed the child, it would not be likely to scream until serious physical injury would result; but I should like to ask that man's mother some questions prompted by scientific curiosity and philanthropic desire. If no immediate strain or rupture followed such paroxysms as the child indulged in, I think there may *possibly* have been some connection between them (in their effect upon the nervous system), and serious nervous prostration which followed an attack of measles some years later. Questions like this must occasion anxious thought to parents who have nervous children. There is, on the one hand, the danger of physical injury from excessive excitement; and a danger equally great on the other hand—the cultivation of willfulness, obstinacy, tyranny of disposition, by

allowing a child to have its own way contrary to the parents' judgment, for the sake of temporary peace. Whether "Dr. Spanxter" should be summoned, wise parents must decide for themselves. Like most other doctors, (except one!), he is in danger of coming too often if you call him at all. Still, there are emergencies when he does seem absolutely necessary. One child of mine led me many an hour of weary effort to "pacify" it, and restore its equanimity, at the expense of my own. But a sound spanking, when it got to the throwing-itself-on-the-floor point, amid its cries, was exactly the dose needed for the cure of such spasms. To spank a baby for waking up with fright and screaming in the night, is a barbarous practice, which I have over heard with extreme indignation. Of course that is not common.

I have known more than one child, who learned how to get its own way every time, by screaming if denied, and holding its breath, until the frightened parents were ready to do anything to have it breathe once more. But no child ever died from any such voluntary breathlessness. Fortunately, our breathing is not wholly under our own control, and if a child should hold its breath until it became unconscious, the lungs, released from the power of the vicious will, would go about their work again, and save the child.

Home Binding of Papers and Magazines.

We know what handsome books are made by getting old magazines bound up in yearly or half-yearly volumes. Many of us can not afford to have all of the old magazines and papers, which we wish to preserve in order, bound by the regular bookbinders. It is possible to bind them together so as to preserve them in a convenient form, with very little trouble, and with no expense to speak of. Sew them together with strong cord or twine. Don't sew them "over and over," like the seam in a sheet, as papers sewed in this way tear out badly, and the book loses its shape. To make a thick book, a good strong awl is needed. Lay the numbers in order, removing the covers, if they are covered. Fit the backs evenly, and make awl holes from half to three-quarters of an inch from the back edge, through the whole pile, not more than two or three inches apart. Sew through these with a darning needle and twine, back and forth, until the book is firm, fastening the ends of the twine securely. If a good strong cover be desired, it is best to bind the backs with strong cloth. This may be done by folding a strip of cloth over the backs (the whole pile together) before piercing the holes. To this strip, on front and back, paste paper, one thickness over another, until a thick board is formed, drying it with a warm flat-iron as you proceed, so as to keep a smooth and even surface. Trim the edges, paste something strong over the back, line the covers neatly, and embellish the outside according to taste.

This is a good way to bind children's magazines, but the covers are quite essential, as without them the leaves roll up and wear away fast with children's usage. I have found it a good way to treat the *American Agriculturist*. My father used to prepare neat little wooden slats, about half an inch wide, and less than half as thick, with little gimlet holes, sewing through these, as he bound a pile of papers, one slat at the top and one at the bottom of the pile. These held the papers firm and preserved them, by preventing the folding of the volume. The firmer and thicker the sewing, the less danger is there of folding, which wears out a home-bound volume faster than anything else.

Two Bread Recipes.

In a diary for 1874, I find two recipes for bread, given me by a careful housekeeper, who assured me of their merits. I was not keeping house at that time, and the diary gave place to another one, and the recipes have never been tried by me. But I doubt not their goodness, especially the one for

BROWN BREAD.—Three even cups of corn-meal, one heaping cup of white flour, three cups of sweet milk, one cup of sour milk, one-half teaspoonful of soda, one-half cup of molasses. This fills a two quart basin. Steam 3 hours, and bake 15 minutes.

GRAHAM BREAD.—Four and one-half cups graham flour, one and a half cup wheat flour, two-thirds cup molasses, two-thirds cup yeast, one pint water, one teaspoon salt. Stir thick at night. Steam three hours next day, and bake fifteen minutes—in the same buttered basin where it was raised.

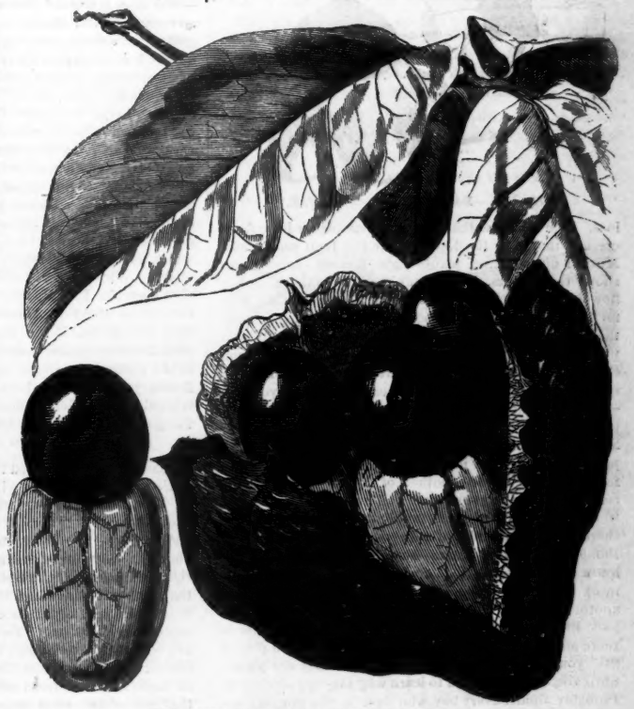
SENDING POSTAGE STAMPS.—When wafers came into use, in place of sealing wax, some one—probably Lord Chesterfield—protested against fastening letters with them, because it was vulgar to "send spittle to our friends." The general use of gummed envelopes at the present time make it necessary to disregard this, and we moisten our envelopes with the mouth, even if it may be thought vulgar. There is one way, however, in which we "send spittle to friends," which is unpleasant, and may be avoided. All thoughtful persons in writing for a favor, or expecting an answer, which will be of benefit to themselves only, enclose a stamp for return postage. The usual custom is to wet a corner of the stamp, just sufficient to hold it, and attach it to the letter. Some, by the way, to make it sure, wet the whole stamp, and stick it fast, so that it takes more time to remove it than it is worth. One does not like to use a stamp that has been partly wetted by another, and the necessity for doing so, may be readily avoided. When we get a lot of stamps we put by those from the margin of the sheet, for enclosing in letters. These stamps have a blank margin, which is partly gummed; and by means of this the stamp is attached to a letter and may be removed by tearing through the punched holes. When we have no stamp with a marginal piece, we then make two cuts through the letter, and put the stamp under the band or slip, thus furnished, as shown in the engraving. While some persons do not notice such things, others are extremely sensitive, and would prefer throwing away a stamp to wetting it, after it had been touched by another, and it is safe to assume that all prefer clean stamps.

HOW TO SERVE EGGS.—"G. T. E." has an abundance of eggs, but is tired of boiled, dropped, scrambled, and omelette, and asks if there are not other ways of cooking, to make a variety. We were once in a foreign city with a companion who was most fastidious with respect to his food, and had, above all else, a special horror of garlic; to be sure, he had never tasted it, but the smell was enough, and he was—it being where Spanish customs prevailed—constantly in dread of garlic. Both were served one morning at breakfast, to a dish consisting of hard-boiled eggs, quartered, and covered with some kind of sauce. We tasted the eggs, and found them delicious, and that their excellence was due to a judicious flavoring with garlic. We said nothing, but waited for the out-break; quarter after quarter of egg disappeared, and our friend's plate was passed for more. We asked him if he liked it, and had him committed most thoroughly to the fine flavor of the sauce. Afterwards we told him that it was garlic that had made the dish so acceptable—and never after heard any more about garlic. We occasionally imitate this dish, in a manner. The eggs are boiled *hard*, shelled and cut lengthwise into quarters, while hot; drawn butter is ready to pour over them, which is first flavored by stirring in sufficient "Worcestershire sauce" to suit the taste. Many are not aware that the peculiar flavor for which they prefer "Worcestershire" to all other sauces, is the trace of garlic it contains, and we use it as a handy way of imparting that flavor to this sauce. Garlic should never be trusted to incautious hands; a mere suspicion of it is as pleasant as its full force is repulsive; it is eminently one of the good gifts to be used, but not abused. As to hard-boiled eggs, they are, it is true, less digestible than soft-boiled, but except for very delicate persons, are not objectionable.

BOYS & GIRLS' COLUMNS.

The Akee Fruit.

So many steamers run between New York and the various West India ports, that the various tropical fruits are abundant and cheap in the city. Besides pineapples, bananas, and such well known fruits, the steamers sometimes bring small quantities of the rarer kinds, which are sold at the fruit stores. It is not unusual to find Guavas, Avocado Pears, Mamee Apples, Mangoes, and such tropical fruits offered for sale, and sometimes, though very rarely, the fruit of the Akee. Some time ago one of our artists came across the Akee at a fruit store, and made a drawing of it for an engraving, which we give here, that you may see what an odd-looking fruit it is. The Akee grows in most of the West India islands, and is a tree about 30 feet high. The fruit is yellowish and ribbed, and when quite ripe breaks open, as shown in the engraving. It is then very showy, as the seeds are jet black, and each, like the one shown separate, has attached to it a pure white appendage, which is the eatable portion. This has a very pleasant taste; most of the tropical fruit are very sweet, but this is somewhat acid, and those who live in the countries where it is abundant, become very fond of it. Of course it is very rarely seen at the stores, and only known as a curiosity.



THE AKEE FRUIT OF THE WEST INDIES.

The Doctor's Correspondence.

I wish to say a word to my young friends who write to me. I intend to answer here the questions asked by Boys and Girls, but only those that I think will be of interest to all the other Boys and Girls. Some send me puzzles, and others problems in arithmetic to which

they wish answers. All letters about puzzles should go to Aunt Sue. I have no time to work out problems; they properly should go to your school teacher. Some questions are about matters that can not be well answered in such a manner that young people can understand them, and these, together with questions that nobody can answer, are left unnoticed. The kind of questions that I especially like to get, are those concerning the common things that you see about you. I wish to encourage you to observe, that is to use your eyes. Boys or girls who live in the country should never find it "dull," or be at a loss for something to interest them. Plants, stones, birds, insects are everywhere, and there is always something to be learned from them. When you wish to know more about these and other natural objects than you can learn at home, I will try to help you. I do not mean that all your questions should be about such things, for I expect you to write on any other matters, about which you think I can aid you. Lately several old people—that is grown up persons, have written to "The Doctor," saying that they would like an answer in the "Correspondence." This can not be done. These columns belong to the Boys and Girls, and to them only. If older persons find anything to interest them here, I am glad of it, but we can not give up any space to them.

ABOUT "EARTH-STARS."

Master A. G. C. picked up last summer some curious things near Providence, R. I. As he could find no one to tell him what they were, he sends them to "The Doctor." No doubt Master Albert will be much surprised to learn that these "things" are plants—and very curious plants too. But that the rest of you may know what I am talking about, let me give an engraving of them. At the left hand, (fig. 1.), you have one of the things as they now appear, while the other engraving, (fig. 2.), shows how they looked when my young friend found them, or as they might have looked in the morning, before the dew had dried off, or soon after a shower. To describe a thing like this in such a way that you will fairly understand it, is sometimes rather difficult, as they belong to a class of objects about which grown people in general know but little, and of course youngsters know

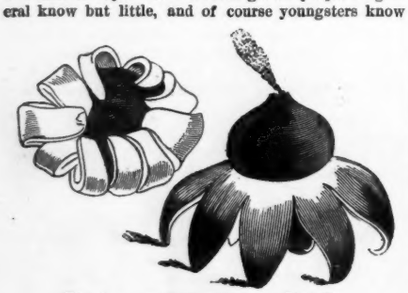


Fig. 1. EARTH-STARS. Fig. 2.

less. You all know that our common plants have flowers, and that after the flowers come the fruit and seeds. Most of our common plants have flowers—some more showy than others. When I say that all plants are either flowering plants, or flowerless plants, (plants that bear no flowers) you will not find it difficult to understand that. If I ask you to name some flowering plants you will at once give the names of a great number, from chickweed to the apple-tree; but when I ask for the names of some of those which bear no flowers, you will—unless some of you have studied a little about plants, be puzzled. There are several different kinds of flowerless plants, which are not much alike except in the one point, that they have no flowers; thus the ferns are one family and the mosses another, of flowerless plants; the seaweeds, and the green scum you see on pools of water in the spring are another family of these plants; then there is a great number of things—for perhaps you never thought they were plants—some of which you must know as mushrooms, toadstools, puff-balls, and even the mold upon bread, and all other molds, that belong to another family of flowerless plants. Very little do they look like plants, for they have no green leaves, nor is there anything about them that is like common plants. Still you must take my word for it that they are plants, until you are old enough to learn why they are so classed. Probably almost every boy who lives in the country has seen a "Puff-ball," a rounded body, sometimes as big as a pullet's egg and sometimes the size of a large apple, or much larger. Boys usually notice these when they are dry, and if hit slightly will send out a great cloud of smoke-like dust, in a sudden puff—hence they are called puff-balls. If you were to find them earlier, you would see that they are whitish, and fastened to an underground portion, and if you break one in this condition, you will find no dust inside, but it is full of what looks like a white pith. Now I can only briefly say that the greater part of this puff-ball is under ground. What we should call the branches of a plant of another kind—and this ball appears only when the under-ground part is full grown—this ball serves for the under-ground plant, just the same as flowers and seeds do to other plants—that is, allows it to multiply its kind. When the puff-ball is

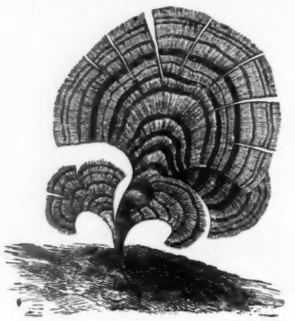


Fig. 3.—"PEACOCK'S-TAIL."

ripe, the dust will *puff* out when you hit it, and each little particle of this dust, so fine that it is carried a long way on the wind, will, if it falls in the right place, grow, and make more under-ground plants which will produce more above-ground parts, which, when ripe, are these same puff-balls, and so you will see that this dust serves just the same as seeds do for larger plants. This is a long story, but I think you will understand it. Now the things Albert wishes to know about are own cousins to the puff-balls. They have an underground part that we do not see; at the proper time a little ball shows itself on the ground, of the size of fig. 1, but round, as that has shriveled. Now instead of acting just like the puff-ball, this has two coats or peels, just as an orange has before you get at the juice. When this ball is ripe, this outer coat splits up, just as you sometimes cut the peel of an orange. This outer coat is very easily affected by moisture. If rain or dew comes, the parts turn back, as shown in fig. 2, and with such force as to tear it away from the under-ground part, and send it, with a bounce, for some distance. When it becomes dry, the points all curl up as in fig. 1. So with the dewy morning and drier midday—or with shower and sunshine, this opens and shuts and goes jumping along—why does it travel? you will wonder. The outside is so curious and so affected by moisture that you have forgotten the central part, the ball. In time, this opens by a little hole—and just like the puff-ball, puffs out a cloud of dust, which, like the puff-ball dust, will grow and make more plants. So you will see that this opening and shutting helps to scatter the dust. You of course want to know what is the name of these curious plants. If the points of fig. 2 were out straight they would look like a star, and they are often, in a wet time, found spread out flat on the ground, and they are called "earth-stars." Botanists give the plant the name *Geaster*, which is exactly Earth-star in Greek. While they are not so very common, I have more than once seen them so abundant that one could, if he chose, pick them up by the basketful. It is a pretty long story, but if I told you anything about it I wished you to understand something more than the mere name.

ABOUT "SEA MOSS."

Miss M. T. has received from a friend who passed the winter in Florida, something which she thinks is a "Sea Moss," and wishes to know more about it. My correspondent is right in supposing it to be from the sea, but the name "Sea Moss," though often used, is incorrect. The true mosses are, with few exceptions, land plants, and those plants, found in both salt and fresh water, that are often called mosses, are as different from the true mosses as can be. In the talk about Earth-stars, I state that there are plants that do not produce flowers. The "Earth-star," is an example of one family of these plants, the Fungi—another family of flowerless plants, live entirely in the water, and are of many beautiful forms and colors. The botanist calls them *Algæ*, and those that live in salt water are commonly known as seaweed. The one sent, (fig. 3), is called the "Peacock's-tail,"—the botanists name for it is *Padina Pavonia*. It is usually about twice as large as the one shown in the engraving, and is found in the sea in warm countries all over the world. When dried it is of different shades of olive green, but when seen in the water, it is very beautiful, and shows all the colors of the rain-bow.

THE RUSSIAN ARMY.

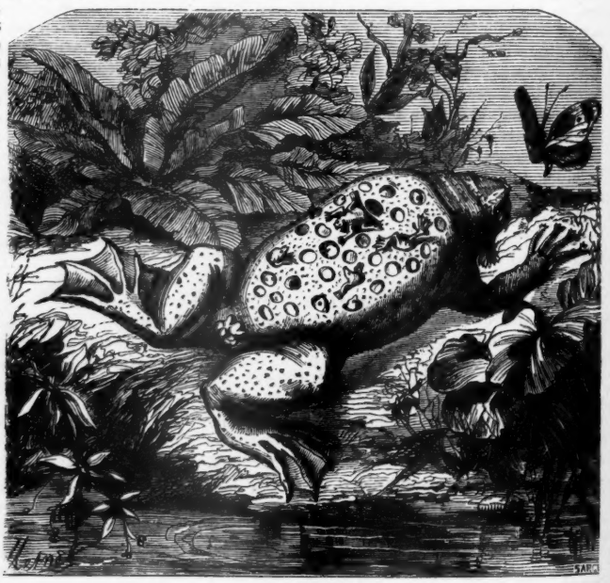
Well, here is an unusual question. J. W. W., Rockland Co., Va., writes that he has no Cyclopædia, but so long as he has "The Doctor" to go to with difficult questions, he does not so much miss it. Certainly, after so appreciative a note as this, I must try and answer the young man's question, which is: "Do the Russians all have to serve a certain number of years in the army? If so, how long?"—While I can reply to most of the Boys and Girl's questions off-hand, this is so much out of my line that I must go to the Cyclopædia for an answer. There I learn that every Russian, who is not in some way disabled, of the age of 20, is liable to 15 years of military duty, six of which must be in active service, and no substitutes are allowed. There are a number of exceptions, as to active service, but nine years of what is called reserve service, is exacted of every man. This refers to the militia, but enlistment in the regular army, and a term of service there, exempts one from this service.

CARELESS LETTER WRITERS.

I have a letter from a boy asking several questions. He says, "If you would be so kind as to answer through the *American Agriculturist*, you would very much oblige a boy of 12."—I will answer "a boy of 12," but perhaps not as he would like. In the first place, "Boy of 12's" letter is about things, the answer to which would be of no interest whatever to any other boy or girl, and I can not answer such letters in the paper. But more than this, his letter does not show where he writes from, nor does it give his name. There is a blind post-mark on the envelope which shows that the letter comes from somewhere in Pennsylvania, and that is all that shows where "Boy of 12" lives. The young man is old enough to write a well expressed letter, and even a "Boy of 12" should know that every letter, written to any person whatever, should start with his address. That is, his Post-Office, and State in full, and should end with his full and proper name. If he writes something for the paper and does not care to have his name printed, he can sign "Boy of 12" or anything else he chooses, but his *real name* should always be given. It is not rare for older people to write without giving their names, and the editors very properly put their letters into the waste-basket. *Always* give name and address in full.

The Surinam Toad.

The history of our common toad is a strange one; the eggs are laid in the water, and hatch out, not as toads, but as tadpoles, or "pollywogs," as boys often call them. In the early part of their life, they live in the water, just like a fish; at length the tadpoles get legs, lose their



THE SURINAM TOAD.

tails, and come out as regular toads. Frogs do the same, and it is difficult to tell a frog tadpole from one that will turn out to be a toad. All this is strange enough, but there is a toad in Surinam that manages in a different, and still more singular manner. After the eggs are laid in the water—and most of you have seen the eggs of our toads and frogs, which the boys call "frog's-spittle," in which the eggs are all surrounded by a clear, jelly-like substance—the male-toad heaps the eggs on the back of

the female, and there they stay. The skin of the back of the female swells up, and forms little pits, or cells, in which each tadpole lives. Instead of taking their chances in the water, like the tadpoles of our frogs, each one has its little hole in the skin of the mother's back, where it is safe from the attacks of fishes, and all other enemies, and it stays there, until it has gone through all the tadpole life, and is ready to come out a young Surinam toad. The engraving shows the mother-toad, with some of the young just escaping.—Very curious, isn't it?

About the "Puzzling Puzzle."

We gave, in May last, under the heading of "A very Puzzling Puzzle," diagrams and very much the words of the correspondent who sent it. In our remarks we stated that it had been sent to Aunt Sue, and she "gave it up." We were not quite correct, and find that we did that lady injustice. In fact, she really pointed out the direction in which the solution of the puzzle would be found, and made a rough drawing, saying if that was not the proper answer, she would "give it up."—In fact, Aunt Sue was really the first one to show the fallacy which makes the thing a puzzle at all. Answers have been sent to Aunt Sue, to The Doctor, and to The Editors, from a number of persons living in almost every State of the Union; some of these answers are accompanied by very elaborate descriptions, and carefully made diagrams, but with such a host, we cannot give all proper credit. We thank

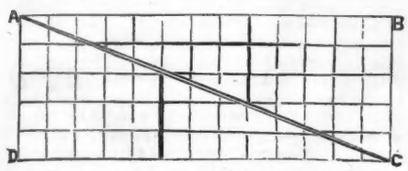


Fig. 1.—DIAGRAM SHOWING THE SPACE.

all for the trouble they have taken, and acknowledge them below in the usual manner. The following, from Aunt Sue, gives the substance of the various explanations.—She says:

"We have received several letters concerning the 64 and 65 squares, and the verdict is that a perfect parallelogram cannot be made from the pieces cut from a square as marked in the illustration given on page 187 of the May *American Agriculturist;* that there will be a rhomboidal space running through the center of the parallelogram diagonally from end to end, (fig. 1), the area of which is exactly equal to one of the squares. The reason for this, is, that the angles do not form a straight line because, in cutting across one piece, the line falls two squares in passing over five: while in the other it falls only three squares in passing over eight. So that if you should take the aggregation of pieces necessary to fill the space left in the parallelogram, and put them together as in figure 2, you would just get the 65th square." We have received letters embodying the substance of the foregoing remarks from A. J. T., Fillmore B. S., H., S., A. F. S., Townsend W., T. B. A., A. S. W., W. L. W., C. E. N., Thos. D. H., J. A. B., J. A. L., F. S., C. F. L., "Geo. Metry," W. S. Morgan, "Architect," C. W. S., R. S. H., D. McC. K., P. B. T., A. W. M., L. R. C., "Mount Vernon," N. F. P., C. E. R., E. C. W., R. B., E. H. A., Mrs. M. B. Y., C. O., F. M. H., J. M.

Fig. 2.

Aunt Sue's Puzzle-Box.

"THE PRIZE ENIGMA."

Our little lady—"Clara Josephine"—has been persuaded to perform the task assigned her. The envelopes superscribed "Answer to Prize Enigma," were dropped into a large cardboard box and placed upon the floor. C. J. stationed beside them. Her first ejaculation was "oh—h!"; then with one fell swoop, a dive, a flirt, and a scuffle, away went the letters all over the carpet. They were carefully gathered together again, and, by judicious management, she was persuaded to hand me one at a time, which I duly marked "1," "2," "3," "4," etc. And this was the order of the enclosed addresses:

1. Geo. M. Taylor, Box 19, Riverside, Burlington Co., N. J.
2. Mrs. M. Thomas, Clear Lake, Sherburne Co., Minn.
3. Frederick Bruce, P. O. Box 168, New Rochelle, Westchester Co., N. Y.
4. H. A. Frink, Westerly, R. I.
5. D. Martinez, 1801 Park Avenue, Philadelphia, Penn.
6. Jas. A. Windsor, Jr., Barrington Centre, R. I.
7. Jessie L. Kirk, 53 2nd street, New York City.
8. Edward D. Campbell, 141 Larned st., E. Detroit, Mich.
9. Abraham Resh, Bird in Hand, (what a queer name for a town, city, village, or whatever it is,) Lancaster Co., Penn.
10. John Brown Mitchell, Box 326, P. O., Clinton, Oneida Co., N. Y.

Only four were left in the box, and they looked so lonesome that I determined to count them in also, and send prizes to all; but upon opening them, I found that two were written by the same person, though signing different names (one "Nellie Hunt," and the other "Emma Goldie"), and as I did not propose to give two prizes to one individual, and could not quite tell how to identify the right party, I must put them down *blank*. The remaining two were May Goldie, Mott Haven, New York City, care of Geo. W. Kirk, and C. S. Campbell, Owego, Tioga Co., N. Y. (I should like to know if these two Campbell's are related to each other, as it is rather curious that there should be two of that name out of only fourteen.)

The answer to the enigma is—"As you cannot avoid your own company, make it as good as possible."

Not thinking it worth while to wait until July before notifying the puzzlers of their success, I have already (May 13th) sent some of the prizes, with a request that the recipients would acknowledge the same, and also tell me how they found a clew to the solution of the enigma. I have received one answer, which gives such an excellent description of the *modus operandi*, that I publish it entire, (it is better than one of my "lessons"):

"WESTERLY, R. I., May 11, 1877.

Dear Aunt Sue:—Please accept my acknowledgements for the very neat 'Pocket Companion' sent me on account of the 'Prize Puzzle,' and convey my kindest regards to Miss Clara Josephine (you know how to do it) for her perspicacity, if that is not too big a word for such a little lady, in selecting me as one of the recipients for her favor. Now for the *modus operandi* of the solution. I seldom pay much attention to that style of enigma, but this being preceded by *instruction*, attracted my notice. At first I did not look at the dictionary, but glanced over the meanings and could think of none to suit. For the first, I knew no word of eight letters meaning Fop. For the third, I did not know whether it should be a noun or an adjective. For the fourth and fifth, words of three letters were so scarce that I could think of none; and so I went on, down to the bottom, completely at sea. Then I took the dictionary (I had no unabridged Worcester, but I have a Webster), and looking at Fop, I took each of its meanings and looked for its synonyms without result. I then took the second and pursued a similar course, succeeding no better. By this time, to use a slang term, 'I smelt a rat,' and made up my mind that none of the words could be found by referring to the meanings given. Then I pursued another course. Of course the 'musical instrument' and 'an animal' were too general to begin upon, and besides I wanted one which had No. 20 in it; so I, noticing that 'carniverous animal' and 'fop' each had No. 6 and 'fop' No. 20, selected them for the attack. I had been working at some difficult Algebraic Problems, and my 'dander' was up and I was bound to do it. I made a list of carniverous animals as follows: Civet, Genet, Hyena, Otter, Ounce, Ratel, Sable, Stoat, Tiger, and noticing that five of them had the letter 'e' for the next to the last, and that must be the *third* letter in No. 1, I looked for a word meaning Fop, whose third letter was 'e,' and there was no such word. That left me but four on the list. I then tried 'Sable,' but there was no word with 'L' for a third letter meaning 'Fop.' Next I tried 'Ounce,' and found Macaroni and Macaroon. Of course I did not have to look at all the words consecutively in the dictionary, but only such as commenced with a consonant followed by a vowel. After knowing what No. 20 was, I took address for adroitness, which gave me 'S' for No. 2, and it did not take me long to find 'Sop' for a pacificator, etc., etc.

Rather a long answer to your question of which item I guessed first. Yours, respectfully, H. A. FRINK."

Is there one among you who does not know how to find out anagrams? Well, suppose I tell you to find out the original word, from the anagram "sad rub"; you take the letters S—A—D—R—U—B (if you have no printed letters, take a strip of cardboard and print the letters upon it yourself), then cut them separate, and move them about (transpose them) until you discover the word "absurd." If you desire to construct anagrams, reverse the process. Select your word, make small words out of the letters composing the original word, using all the letters every time, until you get a sentence to suit you. For instance, we will take the word "A—T—M—O—S—P—H—E—R—E"; now let us see how many sentences we can make—"Seraph to me" (well, there's no sense in that!)—Phrase tome;—He taps more;—O! stamp here;—Heart poems;—Hope, master;—A shop metre;—Oh! see tramp;—Mere hot sap;—He tore maps;—Stop! hear me!—Tom see harp;—Home repast;—O! three maps;—Mother's ape;—and I dare say we could make many more combinations. None of the above anagrams are very good, as they are neither relevant nor comically irrelevant (like "Real fun," which resolves itself into "funeral"); but I think the most tolerable of the lot is "Stop! hear me!" And as our anagrams are made more for amusement than for approbation, we will not be too particular.

The following old English anagrams are excellent:

Sly ware—Lawyers. It's in Charity—Christianity.
Great helps—Telegraphs. No more stars—Astronomers.
Got as a clue—Catalogues. Best in prayer—Presbyterian.
'Tis ye govern—Sovereignty. There we sat—Sweetheart.

Now, little ones, go to work and make some anagrams, but be sure that you send only the best of them to AUNT SUE.

Below we give some anagrams for you to try your skill upon:

1. Seedy tray.
2. Did I feign?
3. Even road.
4. Idle stoic.
5. Troy's deed.
6. Draw faster.
7. Amusing my—.
8. I spyachin.
9. Nine treats.
10. No mimic roses.

EASY ANAGRAMS.—(*For the little ones.*)

1. Shore.
2. Or ivy.
3. Bleat.
4. China.
5. No ears.
6. No cat in.
7. To eat sop.
8. Hurt hog.
9. Been wet.
10. Red ear.

NUMERICAL ENIGMA.

I am composed of 26 letters:

My 18, 21, 23, 9, 6, is something that each one of us possesses, which may be transposed into a planet.

My 4, 3, 11, 17, is something necessary to each one of us.

My 26, 19, 16, 15, is generally an unpleasant noise, though there may be exceptional cases.

My 2, 12, 20, 10, is a small animal.

My 1, 7, 25, 15, 8, is a large animal, though it is often called something else.

My 11, 23, 13, is a tool.

My 24, 14, 22, 5, is what sensible people are.

My whole is a well-known proverb.

ANSWERS TO PUZZLES IN THE MAY NUMBER.

ILLUSTRATED ENIGMA.—The Centennial Exhibition.

HIDDEN COUNTIES IN OHIO.—1. Darke. 2. Medina. 3. Allen. 4. Logan. 5. Wayne. 6. Ross. 7. Lorain.
(Maud Beach, a little girl nine years old, answered these.)

HIDDEN DEITIES.—1. Tyro. 2. Arge. 3. Io. 4. Ino. 5. Até. 6. Comus. 7. Abas. 8. Orus.

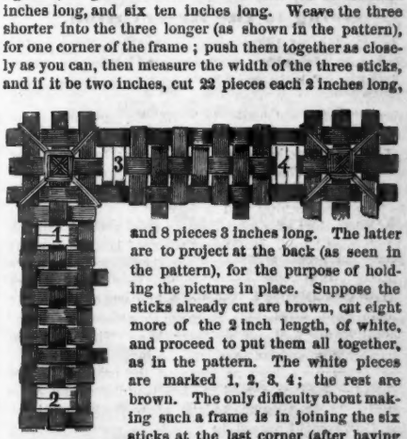
THE LIQUOR AGENT'S ACCOUNT, given in April, has been correctly answered (in addition to those credited last month), by: C. E. N., M., W. A. H.

Thanks for letters, puzzles, etc., to W. W. B., L. J. S., Ella M. E., G. A. C., H. H., Lollie F. T., E. A. Y., W. W., Emma, Frank Nichols.

Send communications intended for Aunt Sue, to Box 111, *P. O., Brooklyn, N. Y.,* and *not* to 245 Broadway.

Aunt Sue's Chats.

I have been asked to describe a frame made of lamplighters, so give one this month. Cut six sticks nine inches long, and six ten inches long. Weave the three shorter into the three longer (as shown in the pattern), for one corner of the frame; push them together as closely as you can, then measure the width of the three sticks, and if it be two inches, cut 22 pieces each 2 inches long,



and 8 pieces 3 inches long. The latter are to project at the back (as seen in the pattern), for the purpose of holding the picture in place. Suppose the sticks already cut are brown, cut eight more of the 2 inch length, of white, and proceed to put them all together, as in the pattern. The white pieces are marked 1, 2, 3, 4; the rest are brown. The only difficulty about making such a frame is in joining the six sticks at the last corner (after having completed the four sides and the three corners); but all it requires is dexterity. The corners may be ornamented with colored worsteds, as shown in the corner of the illustration. You will see how to push them together, under and over, without further explanation. Of course you can vary the colors and lengths to suit your tastes and the size of your picture, remembering that when a different color from the main frame is to be used, the *ends* should be put *under* the *outside* bars, as shown in the white pieces at 1, 2, 3, and 4, in the pattern.

THOMAS THUMB.—Puzzles sent to us must always be

GOING TO THE RESERVATION.—FROM A SKETCH FROM LIFE.—*Drawn and Engraved for the American Agriculturist.*

accompanied by their answers. Enigmas, made upon the names of private individuals, are of no general interest, and are not likely to ever be published in our Puzzle Box.

Going to the Reservation.

In the days of Indian-wars, unhappily not yet quite over, many of you have, no doubt, read in the papers that "Red Cloud" had come "in," that "Crazy Horse" was expected "in," or that "Young Man Afraid of his Horses" would not come "in," and you must have wondered where "in" was, and what it all meant. The various Indian tribes have long been a great trouble to our Government. They claim as their own just so much of the country as their ponies have strength to travel over. As they raise nothing, and as they get all their food (except what they steal) by hunting, even a child can see that it must take a great many acres of land to support only one Indian. Many years ago the Government made treaties with the different tribes, that they should give up their wandering life, go upon certain parts of the public lands, called reservations, (because they were *reserved* for the use of the Indians), and stay there. These reservations are immense tracts of land, as large as some counties, or even as large as some of the original States. When the Indians agreed to stop running all over the country to hunt game, and go upon the reservations, the Government agreed to give them, once or twice a year, as may be, certain things upon which they could live. They were to have beef, pork, and other food, needles, thread, cloth, shoes, and many other things, indeed, were to be well provided for. Some of the tribes went upon the reservations, and have staid there, as they agreed, keeping within the bounds, and regularly receiving the food and other articles from the Government. Others, however, did not like to give up their wild and roaming life. They would stay upon the reservations for the winter, but as soon in the spring as there was grass enough for their ponies to live upon, they would go off, and wander where they pleased. The grass gave them food for their ponies, and they could hunt buffalo and deer enough to give them food for themselves. As for all the rest, why they could go to any frontier settlement, kill the people, and get their blankets, guns, take their food, and whatever else they needed. These wandering tribes are not many, but they have been enough to do a great deal of wicked work in killing innocent people and stealing their property. You must recollect that these Indians know no better. They and their fathers have always gone where they pleased; the white-man has made game scarce, and if the white-man has anything that they want, they will, if they are strong enough, kill the white-man—just as they would an Indian of another tribe—and take all that he had. It is these few tribes who would not go upon, or if they went there, would not stay upon, these reservations, that have made all the trouble, and have been the cause of the Indian wars of which you have lately seen so much about in the papers. These tribes number from a few dozen to several hundred Indians, who follow the lead of one, whom they consider their headman, or chief. When several such tribes unite, and make war, they are very serious enemies, as the wars of last year have shown. Of course a war between the Indians and the whites can end only in one way. The Indians, who make no arms or powder, and who produce really nothing, must be defeated after a while. Sometimes, when in very much larger numbers, they may be able to defeat a small number of troops, as they did General Custer and his men last year. But they can keep up no continued war, for they cannot fight and hunt too, and sooner or later all will go upon the reservations. The picture, showing a small tribe or family of Indians going to the reservation in early winter, to escape the hunger and cold that would soon come upon them otherwise, is one of the most life-like pictures of a party of our Western savages that we have ever seen. Most of the pictures of Indians show them on horses at full gallop, and dressed with much of feathers and finery, and riding with the air of a circus rider. For a short time, in the excitement of a fight, the Indian is a very lively creature, but generally he is a very uninteresting, dull, woe-begone person, much blanketed, and very unlike the usual picture. You, when you move, find load after load of furniture, many boxes of books, trunks of clothing, barrels of glass and crockery, and a host of other things that are thought necessary to make home comfortable, can have no idea of the poverty of the Indians. This family have with them all their worldly goods; they have but little clothing other than what they can wear; a few buffalo skins and blankets, a pot or two, and a few other matters, besides their tents and tent-poles, are all that they own. The way in which they pile up their things upon their tough little horses—those of the women always having the most to carry—the turning of the tent-poles into a sort of sled to carry the tents and other parcels; the way in which the riders, both men and women, sit upon their horses, and the air of the whole party, horses, riders, and traps, are so thoroughly like scenes we have seen over and over again, that we are sure that it gives you a better idea of Indians as they are, than almost any other picture we have seen. While we know them to be, as a general thing, lazy, thievish, cruel, and brutal, we cannot after all help pitying them when we think of the life they lead. Life is, with them, a constant struggle to get food, which they must hunt, or steal, but never work for. They do not read, they know nothing of the world beyond the distances to which their wanderings take them. They see that the white man's settlements each year come nearer and nearer, and the buffalo and other game grow scarcer and scarcer. While we cannot wonder that they look upon us as enemies, and that they get together large bands to fight us, we must stop their force by force. The Government has wisely offered to feed and clothe those who will live upon the reservations in peace, for the old Indians will never learn any other way of life, but the young may be taught to work, as we do, for food, but the grown-up savage must be either fed or fought.

FINE TEAS.

This is a combination of capitalists to supply the consumers of Teas throughout the United States on the mutual principle.

We expect every consumer of Teas to render us all the assistance they can in carrying out our enterprise, as we make a specialty of SUPPLYING CONSUMERS ONLY, (and allow no middlemen to make any profit on our importations,) which will enable us to supply them with Teas at prices lower than have ever been known, and of those fine qualities that seldom reach the interior, being sold only in large cities and among the very wealthy.

SEND FOR PRICE LIST.

CONSUMERS' IMPORTING TEA CO.,
No. 8 Church Street,
P. O. Box 5509. NEW YORK CITY.

PARENTS

buy TIPPED SHOES for your Children. Neatness, Comfort, and Economy alike demand it.

YOU CAN BUY A
Genuine Waltham Watch
without any risk and without leaving your home. Write for our Price List, which is sent free and gives full particulars. Address
HOWARD & CO., No. 222 Fifth Avenue, New York.
Mention Agriculturist when you write.

INVALID RECLINING
ROLLING CHAIRS.

Send for Circular to
FOLDING CHAIR CO., NEW HAVEN, CT.

CHAS. H. GIBBS & CO., **General Commission Merchants,** 252 Washington St., New York. Early Fruits and Vegetables a Specialty. **Our facilities for selling Hot-house and early fruits are unsurpassed.** References: Moore, Jenkins & Co., 127 Franklin St., N. Y. Market Reports sent free.

H.W. JOHNS' PATENT
ASBESTOS PAINTS

These Paints are in every respect strictly first-class, and second to no others in the market in purity, richness and permanency of color, beauty of finish and durability. They are prepared ready for the brush in twelve newest shades and standard colors, suitable for the tasteful decoration of all classes of buildings, inside and out, and for all purposes where a perfect protective coating is required.

Owing to the wonderful *covering* properties of these paints, the farmer, merchant, or manufacturer can, by their use, preserve and beautify their buildings, fences, or other wood and iron work, at from one-half to two-thirds of the usual cost of other ready mixed paints, or white lead and linseed oil. ☞ These Paints are sold by standard U. S. gallon measure, and our packages contain from EIGHT TO TWELVE PER CENT MORE PAINT than those usually sold.

THE ASBESTOS PAINTS contain no water, alkali, or other useless or deleterious ingredients such as are used in nearly all the liquid or so-called chemical paints, and are *guaranteed* to be *the most durable paints in the world for out-side work.* Send for samples.

ASBESTOS ROOF PAINT. For tin and shingle roofs, iron work, agricultural implements, fences, outbuildings, &c. *We guarantee this to be a better article than has ever before been offered to the public for similar purposes.* The largest area of tin roof in the world (the Permanent Exhibition Building at Philadelphia,) which was in very leaky condition, has been painted and restored with this Paint where all others had failed.

ASBESTOS FIRE PROOF PAINT, white or light tints; for the protection of Factories, Bridges, Boiler Rooms, and other wooden structures in danger of ignition from sparks, cinders, or flames. It is also an economical and desirable substitute for White Lead for preserving the class of Outbuildings, Fences, etc., which are usually left unpainted

Roofing, Sheathing, Steam-Pipe and Boiler Coverings, Steam Packing, &c.

All these materials are prepared ready for use, in neat and compact form, are suitable for all climates, and can be easily applied by any one. Liberal inducements to General Merchants, Dealers, and Large Consumers.

SEND FOR SAMPLES, ILLUSTRATED CATALOGUES, PRICE LISTS, &c.

H. W. JOHNS MANUFACTURING CO.,
87 Maiden Lane, New York.

Also for sale by
PHILADELPHIA BRANCH, 406 Arch St.
DOWNIE, TRAINER & CO., Boston.
F. H. WILSON, Baltimore.
S. W. HEMPSTED & CO., Columbus, O.
T. S. & A. J. KIRKWOOD, Chicago.
M. M. BUCK & CO., St. Louis.
C. A. PARKER & CO., New Orleans.
THOMPSON & UPSON, San Francisco.

Your Clothes!!
DO YOU LIVE
Away from Good Tailors or Clothing Stores?

If so, you can get any Suit or Garment you want, made just as you want it, **Very Cheap,**—generally far Cheaper than you can get it near home.—Send to

Foote & Richardson,
245 Broadway, New York,

for free samples of cloths, of any kind and cost you want. They will send exact cost of each, and plain rules for measuring yourself. If you like samples and prices, you can quickly get any garment you want. See June "American Agriculturist," p. 230.

HARDWARE and CUTLERY.
Builders Hardware.—Everything necessary for building or repairing the House, Barn, or Outhouses. **Machinists Hardware.**—Screws, Washers, Bolts, Wrenches, etc. **House Furnishing Goods,** including Refrigerators, also **Farming Implements** and **Tools** of all kinds
JOSEPH T. FARRINGTON,
32 Howard St., New York City.

E. & O. WARD, PRODUCE COMMISSION MERCHANTS.
Sole Agents for Alex. Hornby's Steam-cooked White Wheat and Oat Meal. **No. 279 Washington-st., N. Y.**
(Est'd 1845.) Ref., *Irving National Bank,* New York City.

RUFUS L. COLE, PRODUCE COMMISSION MERCHANT,
141 Reade St., New York. *Established in* 1852. Market reports and shipping directions sent *free* on application.

COMMISSION HOUSE of F. HOPP & CO., 347 Washington St., N. Y. Good sales and prompt returns. Send for Weekly Price Current and Shipping Plate.

The Farm-Yard Club of Jotham.
An Account of the Families and Farms of that Famous Town.
By GEORGE B. LORING.

NOTICES BY THE PRESS.

The Farm-Yard Club of Jotham, an Account of the Families and Farms of that Famous Town, so happily combines the information which both the amateur and the professional farmer need, with the charms of individual experience and characterization, that it will please a great variety of tastes. The number and excellence of the illustrations deserve special mention, the designs being tastefully conceived and skillfully executed, and having, moreover, a peculiar appropriateness.—*Globe,* Boston, Mass.

Dr. Loring has given us a book which is at once cyclopedic in its information, entertaining for its wit and humor, and interesting as a story, for the bright thread of real life and love that runs through it.—*Golden Rule.*

Octavo, 603 pages, with 70 Illustrations of Characters, Country Scenes, Farm Animals, and Implements, by Champney, Rose, Lathrop, Forbes, and others. Price, post-paid, $3.50.

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.

PRACTICAL BOOKS
Suited to the wants of Architects, Carpenters, Builders, and all who contemplate building or remodeling Frame or Brick Buildings of any Size or Cost.

Woollett's Villas and Cottages;
Or, Homes for All. A Book for the People. Showing Plans, Elevations and Views of twelve Villas and ten Cottages, being a Collection of Dwellings suited to various individual wants and adapted to different localities.

This is a most picturesque and pleasing work and is well adapted to the public wants. One Vol., oblong 8vo., of forty 8x12 plates. Cloth; Price, Post-paid, $3.00.

Atwood's Modern American Homesteads
Containing 46 plates, showing a variety of designs for Homesteads, Stables, Ice and Milk Houses, Details, etc., all to scale; also Specifications and Description. 8vo. Cloth. $3.50.

Detail Cottage and Constructive Architecture.
Containing Seventy-five large Lithographic Plates, under the Direction of A. J. Bicknell, showing a great variety of Designs for Cornices, Brackets, Windows and Window Caps, Doors, Piazzas, Porches, Bay and Dormer Windows, Observatories, Towers, Chimney Tops, Balconies, Canopies, Scrolls, Gable and Sawed Ornaments, Fences, Stairs, Newels, Architraves, Mantels, Plaster Finish, etc., including Forty-five Perspectives, Elevations, and Plans of Modern Designs for Cottages, with Details, and Eighteen Elevations of Summer Houses, Villas, Sea-Side Cottages, and Country Houses, together with Fourteen Designs of Street and Store Fronts, with inside finish for Stores and Banks; also, Framings for Dwellings, Barns, Exhibition Buildings, Roofs, Bridges, etc., etc., making in all a Practical Book for Architects, Carpenters, and all who contemplate Building or Remodeling Wood, Stone, or Brick Buildings. One large Quarto Volume, sent FREE by mail or express on receipt of price, $10.00.

BICKNELL'S
Village Builder, with Supplement.
Shows Elevations and Plans for Cottages, Villas, Suburban Residences, Farm Houses, Stables and Carriage Houses, Store Fronts, School Houses, Churches, Court Houses, and a Modern Jail. Also Exterior and Interior Details for Public and Private Buildings, with approved form of Contract and Specifications, containing Seventy-seven Plates, drawn to Scale, giving the Style and Cost of Building in different parts of the country, being an original work, comprising the Designs of 20 Architects, representing the New England, Middle, Western, and South-Western States. One large Quarto Volume. Price, with Supplement, Post-paid, $12.00.

SUPPLEMENT TO
Bicknell's Village Builder.
Contains Twenty Plates, showing Eighteen Modern and Practical Designs for Country and Suburban Residences of Moderate Cost, with Elevations, Plans, Sections, and a Variety of Details, all drawn to Scale; also, a full set of Specifications, with approved form of Contract, and Estimates of cost. One superb quarto volume. Price, post-paid, $5.00.

Carpenters and Builders' Assistant, And Wood-Workers' Guide.
By L. D. GOULD, Architect and Practical Builder.

Containing Twenty-three Plates, fully described. Also, Tables of the Strength of Materials, Length of Braces, where the Run is given, and Length of Run where the Brace is given, Technical Terms used by Carpenters, etc., etc. 8vo. volume, bound in cloth. Price, post-paid, $3.

The American Stair-Builders' Guide.
By L. D. GOULD

Illustrated by 32 Original Plates fully described and drawn to scale. One 8vo. volume, price, post-paid, $4.00.

Guillaume's Interior Architecture.
Containing Twelve Folio Plates, showing Twelve Designs and Eight Sections for Doors, Stairs, Window Finish, Mantels, Wainscoting, &c., and Two Elevations for Dwellings in French and Italian Style. One folio volume, flexible cloth, post-paid, $3.00.

A REVISED AND ENLARGED EDITION OF
Hallett's Specifications,
To which has been added the Form of Contract in general use in the City of New York, which has also been revised, and now first published in its present form. Blank specifications for Frame Houses, costing from Two Thousand to Twenty Thousand Dollars, carefully written by William T. Hallett, Architect. They consist in their various sections of Carpenter and Joiner, Tinner, Plumber, Slater, Painter, and Mason. Printed on large size letter-paper, and neatly bound in paper cover. Price, $1.75 per set.

Hallett's Builder's Contracts, 10 Cts.
Loth's Practical Stair-Builder, $10.00.

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.

TURNIP SEED.

All grown from carefully selected Roots.

The following varieties, will be mailed *post-paid* upon receipt of price affixed: Early White Dutch, White Strap-leaf, Red-top Strap-leaf, Cow-horn, Improved American Ruta-bagas, Long White French, Sweet German, Large Yellow Globe, 6 cts. per ounce, 25 cts. 4 ounces, 75 cts per pound. Prices for larger quantities to dealers, either in bulk or packets for retailing, will be given upon application.

FLOWER SEEDS FOR FALL SOWING.—20 varieties Hardy Annuals and Perennials, $1.

Our descriptive price list of Turnip Seeds, containing many valuable hints of the great value of this crop, with directions for culture, mailed free to all applicants. Address

B. K. BLISS & SONS, P. O. Box 5,712,
34 Barclay Street, New York.

FOR RELIABLE
TURNIP and other SEASONABLE
SEEDS

Address **R. H. ALLEN & CO.,**
Growers and Importers,
189 & 191 Water St., New York.
AGRICULTURAL IMPLEMENTS, &c., &c.

TURNIP SEED
TURNIP SEED

GROWN BY { LANDRETHS'
{ LANDRETHS'

IN QUALITY { UNSURPASSED
{ UNSURPASSED

IN PRICE { LOW BEYOND PRECEDENT
{ LOW BEYOND PRECEDENT

For descriptive Circular and Price List, Dealers in Seeds, apply to

DAVID LANDRETH & SONS,
PHILADELPHIA, PA.

TURNIP SEEDS—new crop and very fine. **55c. per lb., post-paid.**
See advt. page 276.
BENSON & BURPEE, Philadelphia, Pa.

STRAWBERRY PLANTS.

E. P. Roe **Dutchess, Great American,** and other kinds.
IN POTS AFTER AUG. 1st.
Send for Circular.

E. P. ROE, Cornwall-on-Hudson, N. Y.

The Great American Strawberry

"AHEAD" of all others, both for Amateurs and for Market. Largest Size, good Quality, and very Productive. Plants now ready in Pots, $3 per doz., by mail or express.

JOHN S. COLLINS,
Moorestown, New Jersey.

STRAWBERRIES—Largest and Best. **Plant this Fall and save a year.** Capt. Jack, Great American, Crescent Seedling, and others, grown in Pots for Fall planting; will yield a full crop of Fruit next June; one year sooner than if planting is deferred till Spring.
RELIANCE and SUSQUECO (Brandywine) raspberries, 10 acres yielded $4,338.
Send for Catalogues.
WM. PARRY Cinnaminson, N. J.

CABBAGE PLANTS. A prime lot of best varieties. $2.00 per 1,000. $15 per 10,000.
CELERY PLANTS. Now ready. **Dwarf White Solid, Boston Market,** and **Sandringham.** $2.50 per 1,000. $20 per 10,000. Circulars free.
TILLINGHAST BROTHERS,
La Plume, Luzerne Co., Pa.

FARMERS—Who will try Green Corn, Millet, Clover, Rye, &c., as recommended in my Pamphlet on **"Farming with Green Manures,"** will please report the result to me.
C. HARLAN, M.D., Wilmington, Delaware.

FOR SEEDS AND BULBS OF CALIFORNIA FLOWERS, address
J. B. HICKMAN, South San Juan, San Benito Co., Cal.

NEW RARE AND Beautiful Plants.

The undersigned has at all times a rich collection of **GREEN-HOUSE** and **HOT-HOUSE PLANTS,—BEDDING PLANTS; CHOICE ROSES; DAHLIAS,** &c.—well grown and at reasonable prices.—Can be shipped at all seasons.—Catalogues sent to applicants.

JOHN SAUL, Washington, D. C.

KILL THE POTATO BUGS AND COTTON WORM.

Sure death to the Potato Bug and the Cotton Worm, only to be had by the use of Paris Green. All other remedies have failed.

PURE PARIS GREEN,

made with special care, and for sale by

F. W. DEVOE & CO.,
Manufacturers and Importers of Colors, White Leads, Zinc White, Varnishes, and Artists' Materials, Corner of Fulton & William Sts., New York City.
Ask your merchant for Devoe's Paris Green.

POTATO BUGS quickly destroyed with the **SAFETY DUSTER.** 6 acres a day's work. Circulars free. Agents wanted.
SAFETY POISON DUSTER CO., 53 Beekman St., N. Y.

THE Perfect Bug-Killer.

The best duster of Paris Green. Simplicity simplified and efficiency perfected. Weighs 1¼ lb. Capacity ¼ of an acre. One slight motion deposits the dust on the plant in wind or calm. No inhalation. Three acres a day easily. Price 75 cents. Can't get out of repair, and will last a life time.

JOSHUA THORNILEY,
Market Gardener, **New Britain, Ct.**

PRAY'S GREENHOUSES,

CENTRAL FALLS, R. I.
RETAIL ONLY.
BEDDING PLANTS IN VARIETY.
German Seed, Vegetable Plants, &c.
Finest **GERMAN PANSY SEED** a specialty.
Packet with 14 varieties sent on receipt of 25c.

ORNAMENTAL TREES & PLANTS OF EVERY DESCRIPTION. A. HANCE & SON Red Bank, N. J. Catalogues ten cents.

CAMELLIAS, AZALEAS, ROSES, AND WINTER-BLOOMING PLANTS,
BY MAIL—POSTAGE PAID.
Send for Catalogue No. 6 with Supplement—contains two hundred and sixty-four collections of five, fifteen, and twenty plants each, your choice for one dollar. Address
ROBT. J. HALLIDAY, Baltimore, Md.

5,000 lbs. Soft Maple Seed,
this year's crop; now ready. Post-paid $1 per lb. 15 cts. per oz. 6 cts. per pkt. Sow in June or July.
WM. W. JOHNSON, Central Lake, Antrim Co., Mich.

CHERRY BROOK FARM.
Small dished-faced Yorkshires, from the best imported strains, $15 each. Finely marked Berkshires, from imported sows, $20 each. HERBERT MERRIAM, Weston, Mass.

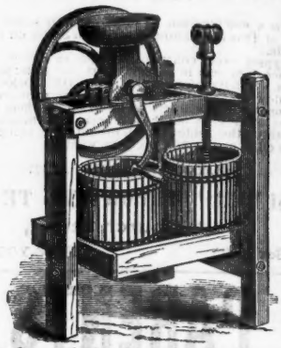
CHAPMAN & VAN WYCK,
(Established 1849),
DEALERS IN
PERUVIAN GUANO
EXCLUSIVELY,
170 Front Street, New York.

CHEAPEST FERTILIZER
BECAUSE THE BEST.
PREMIUM BONE
Grows **WHEAT and GRASS, equal to manure,** at **Half the Cost,** and lasts twice as long.
Farmers!! Send questions on Postal Card to EXCELSIOR FERTILIZER WORKS, Salem, Ohio. Circulars Free.

---

50 MIXED CARDS, with name 10c. & stamp. 26 styles Acquaintance Cards, 10c. Samples for 3c.
M. W. DOWD & CO., BRISTOL, CONN.

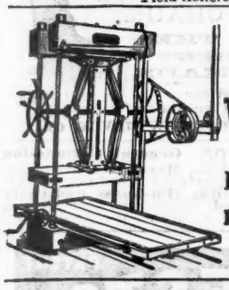
The Farmer's Favorite CIDER & WINE MILL.



Only perfect grinder in use. Simplest, cheapest and best Mill made.
Send for Illustrated Circular.

HIGGANUM MANUFACTURING CO.,
HIGGANUM, CT.

THE NEW YORK PLOW CO.,
55 Beekman St., New York,
Manufacture **Family** Cider and Wine Mills, $15 and $18. Also **Union** Cider Mill; makes very soft, adhesive pomace, better than grated. Turns easy. Price $24 and $32.
Cider Press Screws, $13 & $16.
Presses, $5 to $80; *Grinder separate,* $9.
The Nishwitz Wheel Harrow, draws steady, don't clog, with and without pole. $28 and $30.
The Adamant Plows, hard metal, more durable, and cheaper to repair than Steel Plows, run steady, adjustable beams. Field Rollers reduced. Circulars free.



POWER Cider and Wine Press
WITH
Double Platform.
BOOMER & BOSCHERT PRESS CO.,
SYRACUSE, N. Y.

The Chamberlin Screw Stump Machine,

after 10 years test, has proved its superiority over all others, by its great exhibition of strength and durability, combined with cheapness and ease in pulling all classes of stumps. The Company's challenge of $1000 for a stump machine which would excel theirs, has stood since 1867 without being taken. They build 6 different sizes of machines, to pull all kinds of stumps. They make Subsoilers and Ditching Plows. For Particulars, Prices, etc., address
THE CHAMBERLIN MF'G CO., Olean, N. Y.

THE CILPIN SULKY PLOW.

Constructed entirely of iron and steel. Easily operated entirely by *one lever.* Simple, strong, durable. Performs better work in unskilled hands than a skillful plowman can do with walking plow. 7,000 sold and in use in two years, giving unbounded satisfaction. Gold Medal at Illinois State trial 1874, and Indiana State trial 1876, the two highest ever awarded sulky plows.
R. H. ALLEN & CO., 189 Water St., New York, Agent.
DEERE & CO., Moline, Ills. Established 1847. Manufacturers of Gang Plows, Cultivators, and Steel Plows of all sizes, especially adapted to sticky soils. Send for circulars.

GIANT POWDER.

MANUFACTURED BY THE
ATLANTIC GIANT POWDER CO.,
61 Park Place, New York.

Price, per lb.....50 cts. | Caps or Exploders, each 02 cts.
Fuse, per 100 feet.....75 cts. | Nippers, per pair.....50 cts.
Pamphlets mailed on application to above address.

1877.—LEVEL TREAD HORSE POWERS.

Awarded a MEDAL and DIPLOMA OF HONOR, at the International Exposition, Philadelphia, 1876, to

HEEBNER'S IMPROVED

Level Tread Railway Horse Power and Speed Regulator.

Horses' feet stand level on floor of Power; labor and fatigue of the horse diminished; power increased; money saved. Smooth-shod horses work on them better than rough-shod on the old style Powers; have a slower walk for horse. These Powers are single or double-geared, for one or two horses, with the only successful SPEED REGULATOR in the world. We also have the simplest, most desirable and cheapest Threshers, Separators and Cleaners, for one or two horses. These Powers and Machines will do more work, with less labor for horse or operator, than any other; pronounced superior by every purchaser. Have on record in our office a large list of First Premiums, Diplomas and Medals of State and County Fairs in the United States. We are the Proprietors of the Patents and Sole Manufacturers. ESTABLISHED IN 1840. ☞ Send for Circulars, and learn of the great success of these Machines. Address

HEEBNER & SONS, Lansdale, Montgomery Co., Pa.

(Please state if noticed in the *American Agriculturist.*)

The FEARLESS

Railway Threshing Machine proved itself the "Best at Centennial Trial," and was the only Machine awarded a

CENTENNIAL MEDAL

AND CERTIFICATE OF MERIT,

on both Horse Power and Thresher and Cleaner, at the Centennial Exhibition, as shown by Official Report, which says: "*For special features in the Power to secure light running and minimum friction. For the ingenious form of the Straw Shakers, which insure the proper agitation to separate the grain from the straw.*" For catalogue, address MINARD HARDER,

Cobleskill, Schoharie County, N. Y.

MEDAL MACHINES.

New York State Agricultural Works.

First Premiums at all Competitive Trials.

Railway, Chain and Lever Horse Powers, Threshers and Cleaners, Threshers and Shakers, Clover Hullers, Feed Cutters, Wheel Horse Rakes, Horse Pitchforks, Shingle Machines, Straw Preserving Rye Threshers, Portable Steam-Engines, Cider and Wine-Mills and Presses. Dog and Pony Powers, etc.. etc.

WHEELER & MELICK CO.,

ALBANY, N. Y.

Send stamp for Circular and report of Centennial trial.

The Peerless Thresher and Cleaner—Clover Huller and Cleaner—Straw-Preserving Rye Threshers—Railway and Lever Powers—The Howland Feed Mill—Grain Fans and Corn Shellers. Our machines have received the highest testimonials and cannot be excelled.

B. GILL & SON,

Trenton Agricultural Works, Trenton, N. J.

The Anti-Friction Hay Carrier

Saves labor and money. It is simple; the grappling positive; it runs on friction rolls, hence will come back on slight incline. The track is inexpensive; the carrier costs but a trifle; many hundreds are in use. No trouble about getting over high beams, or to the end of deep bays. Hay is dropped where wanted, and the work of mowing is reduced. Track should be put up now while barns are full.

Send for circulars and designs for tracking barn, to U. S. Wind Engine & Pump Co., Batavia, Ill., manufacturers o the Old Reliable Halladay Standard Wind Mill.

THE JOHNSTON HARVESTER CO.,

Manufacturers of

Self Raking Reapers, Combined Machines, and Mowers,

Send for Catalogue. Brockport, N. Y.

SPRING STEEL TOOTH HORSE RAKES.

Highest Award. Medal of Honor at the Centennial and Vienna Exhibitions. THE CHAMPIONS OF THE WORLD. No Cogs or Ratchets. Easiest Hand or Horse Dumping. Purchasers prefer them to all others for Durability and Efficiency. Fully guaranteed; so no risk is incurred in ordering from us. Responsible Agents wanted, where we have none. Send Stamp for Catalogues of Rakes, Threshing Machines, &c.

WHEELER & MELICK CO., ALBANY, N. Y.

FOUST'S

HAY LOADER.

A perfect machine for rapidly pitching hay, barley, and all loose grain on the wagon, in the field. Increased success in the harvest of 1876. Received the highest and only award for Hay Loader, with Diploma of Merit at Centennial Exposition, based on field trial. Thousands in successful operation. *Send for circulars early to the manufacturers,* STRATTON & CULLUM, Meadville, Pa. ☞ KINGMAN & CO., Peoria, Ill., Gen'l Agents for Illinois, Missouri, and Kansas.

Dodge Hay Press—Automatic Feed.

Puts 10 tons in a common car—Presses a car load a day—Portable as a wagon. Guaranteed.

Address M. & H. M'F'G CO., Waterford, N. Y., or W. T. HANNA, 376 N. Water St., Chicago, Ill.

The Farquhar Separator

(Warranted)

Penna. Agricultural Works. York, Pa.

Lightest draft most durable simplest, most economical and perfect in use. Wastes no grain, cleans it ready for market.

Steam Engines, Horse Power and Threshers of all kinds. Also, Ploughs, Cultivators, &c., &c.

Send for Illustrated Catalogue. *Address A. B. Farquhar, York, Pa.*

Horse Powers and Threshing Machines of all kinds a specialty. Send for large Illustrated Catalogue.

(Established 1844.)

CHAMPION FANNING MILLS.

Largest Fanning Mill Factory in America. We make

5 Sizes for Warehouse, Elevator & Farm Use.

Separates No. 1 and 2 Wheat at one operation. With attachment cleans and separates Clover and Timothy Seeds at one operation.

Has also a perfect Flax Seed rig.

Excels for Castor and White Beans.

BLAKE, BEEBE & CO., Racine, Wis.

The Best Fanning Mill in the World.

BUY THE

A. P. DICKEY Fanning Mill.

No good Farmer can afford to market dirty grain.

A moderate quality of grain, well cleaned, brings a better price than the nicest grade in dirty condition.

Address A. P. DICKEY, Racine, Wis

COTTON SEED HULLER AND FEED-MILL COMBINED.

D. Kahnweiler's celebrated Patent for Plantations and Oil-Mills. Used by Planters, the Oil-Mills in New Orleans and through the country. Highest award at the Centennial Exhibition. Grind and crack Corn, Peas, etc. Planters Power Huller, 15 bushels per hour, $175. Hand Huller, 5 bushels per hour, $75. Send for Circulars and Judges Report. Pay for itself in a few weeks. 120 Centre St., New York.

GEISER'S PATENT Self-Regulating GRAIN SEPARATOR,

Cleaner and Bagger, with new Patent Separating Tail End Elevator, and the latest improved Mounted and Down-Combined Triple-Geared Horse-Power, with Patent Lever and Brace Attachment. This is the Machine that came out "First Best" at the Great Field Trial at the United States Centennial Exhibition, held July 18th to 25th, 1876.

GEISER MANUF'G COMPANY, Waynesboro', Franklin Co., Pa.

LEVEL TREAD HORSE-POWERS with Patent Governor.

ADAMANT PLOWS.

KEYSTONE and other **CIDER MILLS.**

REID'S PATENT BUTTER-WORKER.

STEEL-TOOTH HORSE RAKES.

EXCELSIOR FANNING MILLS.

EARTH CLOSETS, the Cheapest and Best.

Sold at the Agricultural Warehouse of

H. B. GRIFFING, 60 Courtlandt St., N. Y.

The Cook Evaporator and Victor Mill

are the **BEST, and only standard machines.**

FIRST PREMIUM AT 125 STATE FAIRS.

Grand Medal at Centennial Exhibition. Over 4,000 sold. Safe, Reliable, Economical. Cane Growers can't afford to risk Crops with light, weak, unfinished mills, liable to break in the midst of the season. They can't afford to waste crops with mills that don't press out all the juice, or evaporators that make syrup and sugar **unfit for market,** and too little in proportion to the labor and fuel they require.

Blymyer Manufacturing Co., Cincinnati, O.

Steam Engines, Threshers, Bells. *Circulars sent free.*

ESTABLISHED IN 1844.

STRAUB MILL COMPANY, CINCINNATI.

BRADFORD MILL CO.

Successors to Jas. Bradford & Co.

MANUFACTURERS OF

French Buhr Millstones, Portable Corn & Flour Mills, Smut Machines, etc.

Also, dealers in Bolting Cloths and General Mill Furnishing.

Office & Factory, 158 W. 2d St., CINCINNATI, O.

J. R. Stewart, Pres. W. R. Dunlap, Sec.

☞ PRICE-LISTS SENT ON APPLICATION

HARRISON'S MILLS

Grand Medal at Centennial.

Standard Flouring Mill.

Scourer, Grinder and Bolter.

8 feet long by 4 feet high.

Runs with belt 4 inches wide.

Flours 3 to 6 bushels per hour.

Has double ventilating bolter.

For flour, middlings and bran.

Gives every one his own grist.

Makes the best flour and yield.

Is a reliable flouring mill.

Standard Grinding Mill.

For all substances wet or dry.

Built of burr stone and iron.

For heavy or light power.

Capacity of 20 inch stones.

Equal to any larger size.

Thickest French burr stones.

Double discharge spouts.

Adjustable babbit boxes.

Solid self-adjusting burrs.

Centennial Judges award medal on ☞ *these portable, vertical mills for solidity and good workmanship, economy and adaptability.* ☜

EDWARD HARRISON, NEW HAVEN, CONN.

Serviceable Silver-Plated Ware.

"Silver Steel" and "Albata" Silver-Plated.

Save the retailers and jobbers profit, and buy direct of Manufacturers at Wholesale Prices.

An opportunity is now given to buy any of the silver-plated ware manufactured by us direct. The goods are made of good durable metal and will wear for years.

These are not cheap brass goods, like the so-called "Premium Silver Ware," with which the market is flooded, but are warranted as represented. **Remember, brass goods are poisonous!**

Any of these goods sent by mail or express, prepaid, on receipt of the price.

6 Table Knives, solid steel handle and blade (welded), all silver-plated.....$2.50
6 Desert or Tea Knives, all silver-plated.....$2.00
1 doz. "Silver Steel" Tea Spoons, silver-plated.$1.00
1 doz. "Silver Steel" Table Spoons, silver-plated.....$1.50
1 doz. "Silver Steel" Table Forks, silver-plated.....$1.50
1 Gravy Ladle (8 in. long), Albata, silver-plated.....75
1 Soup or Oyster Ladle (11 in. long), Albata, silver-plated.....$1.25
(See illustration, which shows style of last two mentioned articles.)

The entire set (50 pieces).....$9.50

When desired, Initials will be stamped on, for 20 cts. per set.

All sums over $1 should be sent in Registered letter.

Address **STEVENS BROS. & CO.,**
Manufacturers, Northford, Conn.

GOODELL COMPANY,

Sole Manufacturers of Saratoga Potato Peelers & Slicers, Bay State Potato Parers, Bay State, Mammoth Bay State No. 1, Mammoth Bay State No. 2 Paring, Coring & Slicing Machines, Turn-Table & Lightning Apple Parers, Lightning Peach Parers, Family Cherry Stoners, Cahoon Broadcast Seed Sowers, &c. **Antrim, N. H.**

TO THE LADIES!!

BROWN'S FRENCH DRESSING

will make Ladies' and Children's Boots and Shoes that have become rough and red, and Ladies' Traveling Bags which look so old and rusty that they are ashamed to carry them, look just as good as new. It will not rub off or smut when wet. Softens the leather.

No lady will be without it after one trial. Beware of imitations and counterfeits. For sale everywhere.

B. F. BROWN & CO., Boston, Mass.

A FASHIONABLE CORSET,

Constructed in strict accordance with **Anatomical Law,** Superior to any corset of American or Foreign make, sent post-paid on receipt of $1.50, and your size—Guaranteed! Agents wanted. Send stamp for circulars.

WM. H. HYDE & CO., New Haven, Conn.

BARLOW'S INDIGO BLUE. | **THE FAMILY WASH BLUE.**
D. S. WILTBERGER,
Proprietor.
223 North Second St., Philadelphia.

Keep's Custom Shirts made to measure.
The very best, 6 for $9, delivered free everywhere.
Keep's Patent Partly-Made Dress Shirts.
The very best, 6 for $7, delivered free everywhere.
An elegant set of Gold plate collar and sleeve Buttons given with each half dozen Keep's shirts.
Samples and full directions mailed free to any address.
Merchants supplied at a small commission on cost.
Trade circulars mailed free on application.
Keep Manufacturing Co., 165 Mercer St., New York.

NORNY'S

Fruit Preserving Powder

Is tasteless, and preserves all kinds of fruit, either with or without being air tight. This powder has been used for the last seven years in all the States of the Union, with perfect success. It retains a finer flavor than any other process. Price, 50 cents a box, which preserves 60 pounds of dressed fruit. **Three boxes for One Dollar.** Sent by mail, to any address, with full directions. Usual discount to the trade.

JOHNSTON, HOLLOWAY & CO.,
602 Arch St., Philadelphia, General Agents.

500 AGENTS WANTED Immediately, to sell very desirable NEW PATENT articles, and the new combined VICE and **JOCKEY WRENCH.**

Works in peculiar corners, where other Wrenches cannot go. Adapted to agricultural machines and fits all nuts on wagons and carriages; the *axle* nut *included.* No handling the nut or *soiling* the *hands* when oiling *carriages,* and for tightening or removing ox *buttons* it has no equal. By mail, post-paid, 75c. G. J. CAPEWELL & CO., Cheshire, Ct.

AGENTS LOOK! Catalogue of 44 Novelties free, or with a Hand-book invaluable to letter writers, ten cents. T. J. HASTINGS & CO., Worcester, Mass.

MONEY *Made rapidly* with Stencil and Key Check Outfits. Catalogues and Samples FREE. S. M. SPENCER, 112 Washington St., Boston, Mass.

Building Felt.

This water-proof material, resembling fine leather, is for outside work (*no tar substances used*) and inside, instead of plaster. Felt carpetings, etc. Send for circular and samples.

C. J. FAY, Camden, N. J.

BUTTER how to make, pack, preserve & COLOR. Extract Rancidity. Dairymen's Receipts, for 3 cent stamp. MRS. E. SMITH, 327 Arch St., Philada., Pa.

S. B. JEROME & CO.

Extra Quality Clocks.

NEW HAVEN, CONN.
(Established 1836.)

The Boudoir.

Manufacture various special novel and tasteful styles of DETATCHED Lever Time Pieces.

They have substantial and durable metal movements, with balance wheel like a watch; will run in any position, and are of especial value to the traveller.

They are suitable for the Library, the Family Room, the Dining Room, the Sleeping Room, the Shop, the Store, and the Cabin, and any place where correct time is desirable.

The "St. Nicholas," imitation morocco, (4½x4).....$2.00
The "Souvenir," turkey morocco, (4½x4).....2.50
The "Cabinet," black walnut, (6x4½).....2.50
The "Boudoir," octagon, morocco, (5 in.), see cut.....3.50
The "Roslyn," Scotch plaid, (6x4½).....4.00
The "Melrose," Scotch plaid, (6x4½), mantel.....4.00
The "Holyrood," polished white holly, (6x4½).....4.00

Accuracy and Durability Guaranteed.

Carefully packed and sent safely by mail, post-paid, on receipt of price.

THE CELEBRATED Dexter Spring

Is one of those inventions that commends itself to the **PRACTICAL MAN** as the **COMMON-SENSE SPRING,** being a side-spring without the unpleasant and dangerous side motion of the Concord, and obviating the jerking of the Elliptic. Being without perch, gives independent action to each wheel, making them much more durable. The **SPRINGS** are made of special **CRUCIBLE STEEL,** and are fully warranted.

The **DEXTER** supplies a want long felt by the **Farmer, Business Man,** and **Physician,** as it gives them the easiest riding and most durable **SPRING VEHICLE** known, and much less liable to break than the ordinary spring, on account of quality and form.

Please examine carefully the editorial and advertisement in Dec., 1876, *American Agriculturist,* and send for circular to

DEXTER SPRING CO.,
Hulton, near Pittsburgh, Pa.

AUTOMATIC WAGON BRAKE

The most powerful self-acting brake made, and yet is more simple and complete than any ever introduced for general use. The Brake has been fully endorsed by every farmer who has seen it operate. W. A. Armstrong, Secty Elmira Farmers' Club, writes: "A Committee of the Elmira Farmers' Club, consisting of Chas. Heller, John Bridgman, D. T. Billings, S. M. Carr, and M. H. Thurston, gentlemen fully competent to make intelligent judgment, gave the brake careful trial Aug. 21st, and reported unanimously: It is the best brake we have ever seen—prompt in its action—effective when required, and is exceedingly desirable for all farmers on hilly farms." See Illustration in Aug. *Am. Agriculturist.* Town, County, and State rights for sale. Please say where you saw this.

D. L. MULFORD, General Agent,
TIOGA, TIOGA CO., PA.

For FARMERS.

Best Tempered Cast-Steel.
Retail Price, 9 Cents per lb.
WARRANTED. Send for Circular.
Fisher & Norris, Trenton, N. J.
ALL SIZES, from 10 lbs. upwards.

PAINT.

Use None but the

AVERILL PAINT

MIXED READY FOR USE.

Received the Highest Award at the Centennial Exhibition.

"The paint I got from you four years ago looks as fresh and glossy as if put on last fall."
Rev. THOS. DRUMM, Rochester, N. Y.

"Five years ago I used your paint. It wears well—better than any other that I have used.—*E. E. Towne, Supt. Hunt Tobacco Co., Springfield, Mass.*

"Your paint covers splendidly. My house looks beautiful. Am highly pleased with it."—*Dr. Jas. W. Smith, Sag Harbor, N. Y.*

"All the painters in Galveston are using your paint. It gives entire satisfaction wherever used."—*J. F. Smith & Bro., Galveston.*

"We have used the Averill Paint largely during the past six years, and find it to be durable and economical."—*F. G. Yeomans & Sons, Walsworth, N. Y.*

Send for Sample Card and Testimonials to the **AVERILL CHEMICAL PAINT CO., 32 Burling Slip, New York; 171 East Randolph St., Chicago; 139 East River St., Cleveland, O.**

FAIRBANKS' STANDARD SCALES

MADE WITH THE
Latest and Most Valuable Improvements.

SCALES

THE WORLD'S STANDARD.

RECEIVED HIGHEST MEDALS AT

World's Fair, London	1851
World's Fair, New York	1853
World's Fair, Paris	1867
World's Fair, Vienna	1873
World's Fair, Santiago (Chili)	1875
World's Fair, Philadelphia	1876

ALSO

COFFEE AND SPICE MILLS, TEA AND COFFEE CANS, STORE TRUCKS, &c.

AGENTS FOR MILES' ALARM MONEY DRAWERS.
FAIRBANKS & CO., 311 Broadway, N. Y.
FAIRBANKS & Co., 166 Baltimore St., Baltimore.
FAIRBANKS & Co., 53 Camp St., New Orleans.
FAIRBANKS & Co., 216 Main St., Buffalo, N. Y.
FAIRBANKS & Co., 338 Broadway, Albany, N. Y.
FAIRBANKS & Co., 408 St. Paul St., Montreal.
FAIRBANKS & Co., 34 King William St., London.
FAIRBANKS, BROWN & Co., 2 Milk St., Boston.
FAIRBANKS & EWING, Masonic Hall, Philadelphia.
FAIRBANKS, MORSE & Co., Chicago, Ills.
FAIRBANKS, MORSE & Co., Cincinnati, Ohio.
FAIRBANKS, MORSE & Co., Cleveland, Ohio.
FAIRBANKS, MORSE & Co., Pittsburgh, Pa.
FAIRBANKS, MORSE & Co., Louisville, Ky.
FAIRBANKS & Co., St. Louis, Mo.
FAIRBANKS & HUTCHINSON, San Francisco.
For sale by leading Hardware Dealers.

The Lancaster BUTTER CARRIER

with a **CUP** for every print or pat, will enable you to market your butter in the best possible condition. All sizes and forms of Box and Cups made. Price $10 for a 48-pound carrier, with center Ice-box. Send for Circular. See advertisement with cut in June No., page 238.

E. L. RESH, Lancaster, Pa., Sole Manufact.

BUTTER WORKER.

The most Effective, Simple and Convenient Yet Invented. **Works 30 lbs. in less than 5 minutes,** thoroughly working out the buttermilk and mixing in the salt. Send for circular and price lists.

A. H. REID,
No. 6 North 18th St., Philadelphia, Pa.

Rice's Patent Spring Brace.

"THAT ALTERS THE CASE."

Will do twice the service and ride easier. $3 to $5 put on. Agents wanted. Address C. L. RICE, Box 354, Scranton, Pa

Takes well everywhere.

SHOOTING BOOKS.

FRANK FORESTER'S AMERICAN GAME IN ITS SEASONS.

Illustrated with twenty beautiful full-page Engravings from Nature of American Game.

CONTENTS:—JANUARY. Caribou or American Reindeer. —FEBRUARY. Moose Deer. Wild Goose.—MARCH. Mallard and Widgeon.—APRIL. American Snipe. Striped Bass. — MAY. American Trout. Brent Goose. — JUNE. Bay Snipe. Godwit. Salmon. — JULY. Woodcocks.—AUGUST. Summer Duck. Common Deer.—SEPTEMBER. Teal.—OCTOBER. Quail. Bittern. —NOVEMBER. Ruffed Grouse. Yellow Perch.—DECEMBER. Canvas Back. Winter Duck. Fully Illustrated and Described. New edition. Post-paid, $3.00.

FRANK FORESTER'S FIELD SPORTS.

Embracing the Game of North America, Upland Shooting, Bay Shooting, Wild Sporting of the Wilderness, Forest, Prairie, and Mountain Sports, Bear Hunting, Turkey Shooting, etc. 13th edition, revised and illustrated. Two post octavo volumes. Post-paid, $6.00.

FRANK FORESTER'S FISH AND FISHING.

100 engravings. Embracing a full illustrated description of the Game Fish of North America; Trout and Salmon Fishing; Shoal Water and Deep Sea Fishing; Lake and River Fishing; Trolling, Fly Fishing, etc. 12th edition. One post-octavo volume. Post-paid, $3.50.

FRANK FORESTER'S COMPLETE MANUAL.

For Young Sportsmen, of Fowling, Fishing, and Field Sports. With directions for handling the Gun, the Rifle, and the Rod. Art of Shooting on the Wing. The Breaking, Management, and Hunting of the Dog. The varieties and habits of Game. River, Lake, and Sea Fishing. Post octavo. Post-paid, $3.00.

THE HUNTER AND TRAPPER.

By Halsey Thrasher, an old hunter, with fine illustrations. It contains hints about trapping all sorts of game, from a honey-bee to a bear, with a chapter on fishing, and another on dressing and tanning skins and furs. Post-paid, $1.00.

FIELD, COVER, AND TRAP SHOOTING.

By Capt. A. H. Bogardus. With Steel Portrait and Engraving of the "Champion Medal." 1 vol., 12mo. Fancy Stamped Cloth. Price, Post-paid, $2.00.

A compendium of many years of experience, giving hints for skilled marksmen and instructions for young sportsmen, describing the haunts and habits of game birds, flight and resorts of water-fowl, breeding and breaking of dogs, and everything of interest to the sportsman. The author is "champion wing-shot of America," who knows a gun as Hiram Woodruff knew a horse. And he has the same careful and competent editor who put Woodruff's "Trotting Horse of America" into shape—Chas. J. Foster, so many years sporting editor of Wilkes' *Spirit of the Times.*

SCHLEY'S AMERICAN PARTRIDGE AND PHEASANT SHOOTING.

By Frank Schley. Describing the haunts, habits, and methods of hunting and shooting the American Partridge, Quail, Ruffed Grouse, Pheasant. With directions for handling the gun, hunting the dog, and the art of shooting on the wing. Containing a history of the partridges and grouse inhabiting North America. Illustrated. Post-paid, $2.00.

THE DOG.

By Dinks, Mayhew & Hutchinson. Compiled and edited by Frank Forester. Containing full instructions in all that relates to the Breeding, Rearing, Breaking, Kenneling, and Conditioning of Dogs, with valuable recipes for the treatment of all diseases. Illustrated. Post octavo. Post-paid, $3.00.

THE BREECH LOADER.

By GLOAN. Description, Selection, Manufacture, Separation, Loading, Cleaning, Shooting, etc. Post-paid, $2.00.

THE DEAD SHOT:

Or, Sportsman's Complete Guide; a Treatise on the use of the Gun, with Rudimentary and Finishing Lessons in the Art of Shooting Game of all kinds. By Marksman. Post-paid, $1.75.

THE CRACK SHOT:

Or, Young Rifleman's Complete Guide; being a Treatise on the use of the Rifle, with Lessons, including a full description of the latest improved breech-loading weapons; rules and regulations for Target Practice, and directions for Hunting Game. By Edward C. Barber. Post-paid, $1.75.

GUN, ROD, AND SADDLE.

Nearly fifty practical articles on subjects connected with Fishing, Shooting, Racing, Trotting, etc. Post-paid, $1.

PRACTICAL TROUT CULTURE.

By J. H. Slack, M. D., Commissioner of Fisheries, New Jersey. Fully illustrated and describing thoroughly all that is requisite to successful Trout Culture. Post-paid, $1.50.

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.

STANDARD
Architectural Books
FOR
CARPENTERS AND BUILDERS.

Rural Church Architecture.—Twenty Churches of moderate cost. Exemplified in Elevations, Plans, Sections, and Details, by Upjohn, Renwick, Wheeler, Wells, Austin, Stone, Cleveland, Backus, Reeve, and Eveleth. New and revised edition, quarto, uniform with Woodward's National Architect. Price, post-paid, $6.

Hussey's National Cottage Architecture; or, Homes for Every One.—With Designs, Plans, Details, Specifications, and Cost; with Working Scale, Drawings complete, so that Houses may be built direct from the book. Adapted to the popular demand for practical, handsome, and economical homes. Royal Quarto. Six Dollars, post-paid.

Atwood's Country and Suburban Houses.—Illustrated with about 150 engravings. Hints and Suggestions as to the General Principles of House-building, Style, Cost, Location, etc. Post-paid, $1.50.

Monckton's National Stair-Builder.—Is a complete work on Stair-Building and Hand-Railing. Fully explained and illustrated by large scale diagrams, in two colors, with designs for Staircases, Newels, Balusters, and Hand-Rails. Royal Quarto. Post-paid, $6.00.

Monckton's National Carpenter and Joiner.—A complete work, covering the whole science of Carpentry, Joinery, Roofing, Framing, etc., fully explained and illustrated by large scale diagrams in two colors. Royal Quarto. Post-paid, $6.00.

Woodward's National Architect.—1,000 Designs, Plans, and Details for Country, Suburban, and Village Houses; with Perspective Views, Front and Side Elevations, Sections, Full Detail Drawings, Specifications, and Estimates. Also, Detail Drawings to Working Scale, of Brackets, Cornices, French Roofs, Sectional and Framing Plans of French Roofs, Dormer-Windows for French Roofs, Bay-Windows, Verandas, Porches, Plaster Finish, Cornices, Ceilings, Hard-wood Mantels, and all that is required by a Builder to design, specify, erect, and finish in the most approved style. One superb quarto volume. Post-paid, $12.00.

Woodward's Cottages and Farm Houses.—188 Designs and Plans of low-priced Cottages, Farm Houses, and Out-Buildings. Post-paid, $1.50.

Woodward's Suburban and Country Houses.—70 Designs and Plans, and numerous examples of the French Roof. Post-paid, $1.50.

Woodward's Country Homes.—150 Designs and Plans, with Description of the Manner of Constructing Balloon Frames. Post-paid, $1.50.

Woodward's Graperies and Horticultural Buildings.—Designs and Plans of Hot-Beds, Cold-Pits, Propagating Houses, Forcing Houses, Hot and Cold Graperies, Green Houses, Conservatories, Orchard Houses, etc, with the various modes of Ventilating and Heating. Post-paid, $1.50.

Wheeler's Rural Homes.—Houses suited to Country Life. Post-paid, $2.00.

Wheeler's Homes for the People.—100 Original Designs, with full Descriptions, and Constructive and Miscellaneous Details. Post-paid, $3.00.

Harney's Barns, Out-Buildings, and Fences.—Containing Designs and Plans of Stables, Farm-Barns, Out-Buildings, Gates, Gateways, Fences, Stable Fittings and Furniture, with nearly 200 Illustrations. Royal Quarto. Post-paid, $6.00.

Eveleth's School-House Architecture.—A new and original work, containing Seventeen Designs for School-Houses. Sixty-seven Plates with Perspectives, Elevations, Plans, Sections, Details, Specifications all drawn to working scale, with methods of Heating and Ventilation. Large Quarto. Post-paid, $6.00.

Copley's Plain and Ornamental Alphabets.—Giving examples in all styles, together with Maps, Titles, Borders, Meridians, Ciphers, Monograms, Flourishes, etc., adapted for the practical use of Surveyors, Civil Engineers, Draughtsmen, Architects, Sign Painters, Schools, etc. Post-paid, $3.00.

Cummings' Architectural Details.—Containing 387 Designs and 967 Illustrations of the Various Parts needed in the Construction of Buildings, Public and Private, both for the City and Country. Also, Plans and Elevations of Houses, Stores, Cottages, and other Buildings. Royal Quarto. Price, post-paid, $10.

Jacques' Manual of the House.—How to Build Dwellings, Barns, Stables, and Out-Buildings of all kinds. 126 Designs and Plans. Post-paid, $1.50.

The Universal Stair-Builder.—A Treatise on the Construction of Stair-cases and Hand-rails. Illustrated by 29 Plates. By R. A. Cupper. Post-paid, $3.50.

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Continued from p. 249.

Roots for Sheep.—"W." We prefer mangels to ruta-bagas for sheep. A larger crop can be grown of the former and with less trouble. They are as nutritious and healthful as ruta-bagas.

Remedy for a Hard Milker.—"G. T. P.," Dryden, N. Y. When the orifice of the teat becomes partly or wholly obstructed, it may be opened by an instrument specially made for the purpose. This consists of a small tube in which a fine lancet point is concealed; it is pushed into the teat, until it meets the obstruction, when the point is forced out of a slit in the side of the tube, by pressing a spring and by pushing the tube the obstruction is cut through. If the obstruction is at the lower part, a small plug of bone, larger in the middle than at the ends, and having a button or knob at one end, to prevent it from going too far in, may be pushed into the teat and left there. After a few days the stricture will probably disappear.

A Standard of Excellence for Swine.—"W. F. McI.," West Point, Ga. The proceedings of the Swine-breeders Convention, contains the accepted standards of excellence of all the acknowledged breeds of swine. We believe no copies are for sale. The Berkshire Record, Vol. 1, contains the description of the Berkshire breed. This book can be obtained of A. M. Garland, Secr'y, Springfield, Ill.

Foolish Statement Concerning Preserving Corn-Fodder.—One of the most astonishing instances of the ignorance and gullibility of "agricultural editors" who know nothing of agriculture, is given of late in the wide circulation by copying by agricultural and scientific papers, of a statement about growing and preserving of corn-fodder by a person in Maryland, which first appeared in the "Weekly N. Y. Tribune." After reciting some impossible and unfounded "experiments and results," among which it is said: "The cost of producing this fodder was only about $1 a ton, which is only one-twentieth as much as the cost of Timothy hay, *which is not equal to it in any respect,*" the following absurd and false figures are given, viz.: The advantages of this method is best shown by a comparison between the cost of production of this fodder and the cost of Timothy hay:

Phosphates, 10 acres, at $16	$160
Team and plough for 30 days	60
Man to tend the team	15
Cutting	15
Hauling and preserving	250
Total cost	$500

"A fair estimate of the crop of these ten acres would be 500 tons. Five hundred tons of Timothy hay would cost $10,900, and as this 500 tons of chopped fodder will answer the same purpose as the Timothy hay, it is easily seen that every community can thus raise his own meat at about half the cost to import it." It is unnecessary to point out the folly of this statement, the comparison of green fodder with dry Timothy hay and the impossibility of cutting 500 tons of fodder for $15, or the hiring of a man to tend a team for 30 days for $15.

Nets for Poultry.—"F. C. B.," Bristol Co., Mass. The nets used for herding sheep, would answer very well for confining poultry, or protecting gardens from them. The cheapest kind is imported, and may be procured, we believe, of R. H. Allen & Co., N. Y.

Breeding an Old Mare.—"J. S.," Nova Scotia. A mare 18 years old, that has never had a colt, would probably have no difficulty in foaling, but there would be some doubt of her breeding at that age.

To Find Bee Trees in the Woods.—"E. P.," Topeka, Kansas. Bee trees may be found by trapping the wild bees in small boxes, which have been smeared with honey. The bees are attracted to the boxes by burning some paper which has some honey rubbed upon it, in the woods where they are found. The trapped bees are let out of the box one by one when they are filled with the honey, and the direction of their flight is observed. This is followed until the tree is found. When loosed from the box, the bees rise to the tops of the trees, and then dart off in a "bee line" for their hive. It requires skill to keep track of the bees in their flight.

Ringworm in Cattle.—"G. F. P.," Ringworm consists of a round scurfy spot, generally appearing about the head—probably because animals are apt to rub the head on posts, fences, and trees—from which the hair falls off. These spots when rubbed, bleed and become sore. The cause is a minute fungoid growth which is communicated from one animal to another, and thus produces a contagious disease of the skin. The remedy is to rub these spots with an ointment of lard and carbolic acid, (4 oz. of lard to 1 dram of acid), twice a day. Rubbing posts and fences become infected and will give the disease to other cattle, thus spreading it very widely when once it appears.

Hight of Spring House.—"C. F. J.," Leavenworth, Kansas. A spring house that is 5 feet under ground should be at least 7 feet above it. It would be well to have the building 10 or 12 feet high above ground, with an upper apartment, which would make the lower one much cooler than otherwise.

Corn in Canada.—"J. K.," Greensville, Ont. Corn, of the kinds grown in Indiana, will not ripen in Canada, as the season is too short and cool. A very good kind of corn for planting in Canada, or for late planting in the Northern States, is the "Early Canada," a small, but fairly prolific. 8-rowed, yellow variety. We have grown this kind for fodder, in rows 2 feet apart, and the seed one foot apart in the row, planted on the 21st of June, which gave a very fine crop, with ripe ears, and stalks 7 to 8 feet high, very suitable for foddering by being cut up, stalks and ears together, and fed dry or steamed.

Are Stanchions preferable to Stalls?—"J.," In the opinion of the writer, stanchions are in every way preferable to stalls. The prevalent idea that cows are uncomfortable in them is unfounded; the fact that they are safe and cleanly kept is far more important than the consideration whether the cows would choose to be tied with chains or confined in stanchions. We have not yet heard a single objection against stanchions that should weigh in the least against their convenience and safety.

Sawdust for Bedding.—"W. B. S.," Manchester, Vt. Hard wood sawdust not only makes excellent bedding, but when decomposed with the manure, it is useful as a fertilizer, especially upon clay soil. Pine sawdust is not so good, and on light sandy soil is objectionable, as making it still lighter. For clay soils there is no objection to pine sawdust or even shavings.

Stiffness in a Mare.—"H. H.," Benton Co., Ind. The stiffness of the hind quarters, the swelling of the udder, disarrangement of the urinary functions, feverish condition and pain, are all very prominent symptoms of the existence of renal calculi or stones in the kidneys. Sometimes these are formed of considerable size, a number in our possession being from the size of a pea up to that of a pigeon's egg, and of very irregular surface. If blood is seen in the urine, or if on examining it with a microscope crystals are seen in it, the presence of this disease may be considered certain. There is no cure. Some palliatives may be used, such as to keep the bowels loose and the action of the kidneys and bladder easy by laxative food and demulcent mashes or drinks. Linseed meal, oat meal and chopped carrots will be proper food, and when the pain is severe, a drink of sweetened gum water with half an ounce of tincture of opium, (laudanum), may be given. If a purgative or diuretic is needed, give a pint of linseed oil, or olive oil, but no salts, saltpeter, or rosin.

Treatment of Pleuro-pneumonia.—"J. F. S.," Londonderry, N. H. The period of incubation, or of attack after exposure, of the contagious disease known as pleuro-pneumonia, is from 14 days to more than a month. An animal is not accounted safe until after six weeks from contact with infected cattle. The first stage of the disease is an increased temperature, only to be discovered by applying a thermometer to the mouth or the fundament. This may last several days before any further symptom occurs, and if discovered, treatment is now the most effective. An increased secretion of milk is often observed in this period with cows. The temperature of the animal rises to 103 or 104 degrees, instead of 100 to 101 degrees. A shivering fit may occur in this stage. When these symptoms have been observed, sick animals should be isolated, and all others closely watched. The most certain treatment is to slaughter infected animals at once, as danger to others is avoided, and disinfect the stables by the plentiful use of carbolic acid or burning sulphur. Otherwise the sick animal should have one pound of Epsom Salts, and an injection of a solution of 1 dram of Carbolic Acid in two quarts of warm water. This should be followed by doses of half-an-ounce of Hypo-sulphite of Soda, morning and night, for several days. If this treatment is of no avail, and the succeeding fever sets in, with discharge from the nose and frothing at the mouth, the chances of cure are so small and few, and the danger to other animals so great, that the best course is to slaughter the animal and bury it under at least 3 feet of earth, with a load of quicklime all around the carcass. A very wise precaution would be to have some law enacted to provide for the destruction of all infected animals, and partial compensation to the owner from the public revenue. This would be the cheapest way in the end to treat this dreadful disease, which has cost the English people fifty millions of dollars in the past few years.

Protecting Winter Wheat.—"A. J. M.," Waukegan, Ill. The use of straw, or coarse hay, as a mulch for protecting winter wheat during the winter, is advisable. But care should be exercised lest too much straw may be used, and the wheat smothered. Six inches of straw would be too much. One inch would be enough. The object should be to protect the soil from thawing repeatedly, during the winter, as it is the frequent freezing after thawing, which destroys the wheat.

Sheep for Wool and Mutton.—"W. W.," Marshall, Minn. A pure Cotswold would probably be the best ram to use on a flock of native and grade ewes, when wool lambs and mutton are all desired. In feeding unthrashed oats, we have found that the straw was greatly wasted; the sheep eating only the heads and leaving the straw. On thrashing the oats, and feeding the straw in racks, it was eaten up nearly clean, and then the grain was fed by itself. This plan prevented the waste and kept the sheep much more quiet at feeding time.

Gladwin or Gladwyn.—E. Oswald. This is the common name, also written Gladdon, Gladen, and Glader, for a species of Iris or Flower de Luce, a native of England.—*Iris fœtidissima*, so named as its leaves have an unpleasant smell when bruised. The flowers are usually purple, and not especially showy, the plant being cultivated for its seed vessels, which open when ripe, exposing the orange or scarlet seeds, and are used for Christmas and other decorations. Your other question can not be answered in the paper, and the omission of the address prevents answering by mail.

The doings of a Nameless Cow.—Mrs. M., of Vineland, N. J., writes: "The paper enclosed is a 'Milk measure.' I have no lactometer, but after reading about 'Maggie Stewart,' concluded to improvise one out of a glass preserve jar. I give the measure of the result, the length of the paper indicating the depth of the milk, the notch the cream. Our cow has no name, no portrait, no blood, and came from nowhere—as anybody knows of; is a good feeder, (especially of salt), is *not* quiet, but full of fun, enjoying herself finely in a 7x9 barnyard, never stabled, never curried, never ill-used, never petted and fondled; she never holds up her milk, and never gets angry; her cream makes splendid yellow butter, without artificial coloring, in five minutes churning. I do not doubt Mr. Crozier's statement, but a little home observation and *measurement* may be found very satisfactory to the poor small dairy-woman, ready to give up in despair at the wonderful 'blooded stock' results."—Our friend's measurement would have been more satisfactory had her jar been taller and narrower; as it is, the measure shows 22 per cent of cream, which, whatever may be said of the cow's other characters and qualities, is by no means negative.

Cure of Fistula.—"W. J. T.," Warren Co., Ky. Fistula cannot be cured without the use of corrosive substances, by which the pipe is destroyed. There may be cases in which the knife may be used to open the pipes and cut loose the diseased growths within the fistula, but then some corrosive substance, such as arsenic or other mineral acids, are used to eat these away.

Pekin Ducks.—H. Terrell asks certain questions about Pekin ducks, which are disparaged by some breeders of good reputation. Nothing is more common than the disparagement of famous breeds of cattle, horses, and fancy stock of all kinds. In some hands the best stock will run down in a few generations, and become little better than scrubs. A well known breeder of Pekins, who has raised them for four years, side by side with Rouens, Aylesburys, and Cayugas, says: "The Pekins easily maintain their supremacy over the other varieties. They not only look larger, but weigh heavier, taking the flocks through at the same age and under the same treatment, which is the true test of excellence. In my flocks the Pekins will run two pounds a pair heavier than Rouens and Aylesburys, and the difference is still more marked between the Pekins and Cayugas. The Pekins are not only larger, but they are far more hardy and more easily raised. They lay on the average twice as many eggs as either of the other varieties. The real merit of the Pekins is proved by the demand for them. Although I have all four varieties advertised and sent out in my circulars the last two years, and have bred from the best stock in the market, there has been very little demand for anything but Pekins, of which I have sold at least ten times as many as of all the other varieties put together. The experience of my neighbors, who have bred Pekins, is similar to my own. They are driving the other ducks out of the market, and this may be the secret of the disparagement of the Pekins by some of our breeders."—We give this testimony for what it is worth. We have no reason to doubt that the Pekins are sustaining their reputation as the largest, most prolific, and profitable ducks.

Will Grubs in the Head Kill Sheep?—"S. J." Chatham Center, N. Y., sends some grubs taken from the head of a sheep that died, as a proof that the grubs were the cause of death. This is not likely, as four grubs of this kind would hardly trouble a sheep. As the sheep ran at the nose, and would neither move nor eat, the cause of death was probably pneumonia. When grubs trouble sheep, they hold their heads down and snort violently, and stamp with their fore feet. If grubs were fatal to sheep, there would scarcely be a flock surviving, for the majority of sheep carry them in their heads.

The Time to Cut Chestnut Timber.—"J. B. W.," Hartford, Conn. The time for cutting depends upon whether it is desired that the Chestnut stumps should sprout or not. Chestnut cut in the winter, will sprout from the roots, and in a few years will be ready to cut again for posts and rails. If cut in July or August, it will not sprout, but it is said that the timber is more durable than when cut in the winter. This, however, we can not vouch for.

Preservation of Eggs.—"J. F. B.," Chanute, Kansas, and several others. The most effective preservative for eggs that has yet been proposed, is linseed oil, or cotton-seed oil may be used instead. By carefully coating *fresh* eggs with either of these oils, and packing them, small end downwards, in any dry, porous substance, that is a non-conductor of heat, such as chaff, cork-cuttings, or maple sawdust, they have been kept in perfect condition and without loss of weight for 6 months.

Artificial Hatching of Eggs.—"G. A.," Paterson, N. J. In the *American Agriculturist* of July, 1876, was an illustrated article with full information about the hatching of eggs in incubators. A little book, "The Poultry Farm and Market," price 75 cents, published and sold by the Orange Judd Co., contains a full account of artificial incubation.

Paris Green and the Potato Bug.

There are some parts of the country, mainly in New England, in which the Potato-bug has to be fought for the first time, and in these, as well as elsewhere, the propriety and safety of using Paris Green to destroy the insect are discussed. One or two persons, of some scientific reputation, have condemned the use of all mineral poisons as dangerous, but propose no substitute.

Tho question is one of great importance, and had we any doubt of the propriety of using Paris Green, we should feel it our duty to express it. The facts are these: No other poison than Arsenic in some form is effective, or applicable on the large scale. Paris Green (Arsenite of Copper) is the best form in which Arsenic can be applied. It is a deadly poison, and is widely known as such. Moreover, its color is an element of safety, as it serves as a warning, and for this reason, if for no other, this is preferable to any colorless compound of Arsenic. All the danger attending its use is due to careless handling and keeping. It does not poison the potato by being taken into the circulation of the plant. The tests for arsenic are among the most delicate of those known to chemistry, and repeated trials, where excessive quantities of the poison were purposely used—many times more than are applied in practice, have failed to show even a *trace* of Arsenic in the tuber.

Fears have been expressed that the soil may be poisoned and thus rendered unfit for future crops. The amount used is so small, only a fraction of a grain to the cubic foot of soil—that were it unchanged, its presence would not be appreciable, but it is well known that it is decomposed by the iron in the soil, and rendered inert, and under some conditions converted into a gaseous compound, and disappears in that form. The poison has been used now for six years or more, each year in increased quantities, so that the annual consumption amounts to tons, yet there is yet no authentic case of any injury resulting from poison communicated to the tuber.

The great danger to be apprehended is from carelessness in handling, and want of knowledge of its highly dangerous qualities. Let it always be marked POISON.

METHODS OF USING THE POISON.

The poison is applied in the dry state, diluted with flour or plaster in varying proportions, some using only 10 parts of flour or plaster to one part of Paris Green, while others use as much as 40 or 50 parts. One to 24 or 30 of the divisor is most common. Flour, the poorest will answer, is preferable to plaster, as it causes the poison to adhere, which is a great advantage. The application is made while the vines are wet with dew. The chief objection to the dry method is the danger of inhaling the dust, and the difficulty of mixing large quantities, so as to have the poison equally diffused throughout the whole. The mixture will be more thorough if only small quantities are operated with at a time.

Applied with water. Paris Green is not soluble in water, but is only diffused through the liquid, and in a short time, if at rest, will completely settle. Molasses, or thin paste, are sometimes added to the water to hold the powder longer in suspension, and also to cause it to adhere to the leaves when the water has evaporated. A tablespoonful of Paris Green to a 10-quart bucketful of water is the usual proportion. This method is regarded as easier of application than in the dry state, can be done at any time of day, and there is no danger of inhaling the poison. Last year we used a large tin watering pot, the same as used for watering plants, holding about two pailsful, with a fine rose or sprinkler, putting in a heaping tablespoonful of the powdered Paris Green, and keeping it diffused by shaking the vessel frequently. The fluid was sprinkled only on those vines having bugs or larvæ on them. In this way we effectually conquered the pest, and had a full crop of potatoes.

MEANS OF APPLICATION.

The dry powder can be readily applied on a small scale by an extemporized duster made from a wide-mouthed bottle, or fruit can, attached to a stick, and a piece of muslin tied over the mouth. Where there is much to be done, ease of application, economy of material and thoroughness of distribution, are to be considered, and some of the many distributors or dusters will be required. We have figured and described a number of them in former volumes. One of the most useful of these was given in August last. A broad-bottomed saucepan, such as are used in restaurants for stewing oysters, with perforated bottom and a long handle, is very efficient.

J. Thornley, of New Britain, Conn., sends a distributor which he finds very useful; it is a shallow tin pail, with perforated bottom and long bow bail, to be used with a circular motion, given by a half turn of the wrist. Still another, called the "Safety Paris Green Duster," is made by the Safety Poison Duster Co., 55 Beekman St., N. Y. The principal feature of this is a guard or apron which surrounds the perforated duster and thus prevents scattering. We have not yet been able to try these.

For application in the liquid form, an old broom or whisp will answer on a small scale, but for larger quantities some kind of a sprinkler is needed—and several are now in the market. The Spray Machine, invented by W. P. Peck, West Grove, Pa., is highly commended by those who have used it. The liquid is carried in a can attached to the back, and forced out by a current of air supplied by a bellows, which is operated by a crank, with one hand, while the other hand directs the nozzle which delivers the liquid in a fine spray.

The New York Horticultural Society.

The Spring Exhibition was held at Gilmore's Garden, May 29th, 30th and 31st, and quite equalled the exhibition of 1876, although restricted mainly to flowers, the show of strawberries and other fruit being held separately on June 13th and 14th. The successful competitors at the Spring Show were as follows: Geo. Such, South Amboy, N. J., took the following prizes: for best 10 variegated-leaved plants; the best single specimen of variegated-leaved plant; the best 12 varieties of Ferns; the best single specimen Fern; the best 10 Palms; best 6 Stove Plants; best 10 Orchids....James Riddle, Inwood, N. Y., carried off the premium for the best single specimen Dracæna; for Moss Roses in pots, and a special premium for a beautiful urn-shaped design of living plants, arranged in the ribbon style of planting.....To Isaac Buchanan, Astoria, L.I., were awarded prizes for the best 6 Ferns; the best 12 Azaleas; the best specimen single Orchid, and best 3 Orchids....S. B. Parsons & Sons, Kissena Nurseries, Flushing, N. Y., took prizes for the best display of Rhododendrons and Azaleas; for the best 10 varieties of Rhododendrons and Azaleas, and also for the best collection of Evergreens and Japanese Maples. ....To Charles Zeller, Flatbush, L. I., was awarded the premium for the best 12 varieties Monthly Carnations. ....John Henderson, Flushing, L. I., had the best 12 Verbenas, the best 12 Pelargoniums, and the best 12 Zonal Pelargoniums, and of course took the prize in each class....Peter Henderson, Jersey City, N. J., was awarded for the best 6 Fuchsias; the best 6 Tricolor Pelargoniums; best single specimen ditto; for best 6 Chinese Primulas; the best collection Pansies, and the best collection of cut flowers....H. Reynolds, Flatbush, L. I., had best 6 Zonal Pelargoniums; the best 6 double Pelargoniums, and the best single specimen ditto....William Ball, Spuyten Duyvil, N. Y., was successful with the best single specimen Zonal Pelargonium, and a group of Bedding Plants....S. B. Symes, Tarrytown, N. Y., easily had the best collection of Cape Heaths, as well as single specimen Heath.....John Cadness, Flushing, L. I., deservedly took a prize for the new white Hydrangea, "Thos. Hogg."

Walter Reid, 1286 Broadway, New York, had the best Wardian Case of Plants, the best Fernery and Hanging Baskets, and was awarded for each.... ..Kretchmar Bros., Flatbush, L. I., were given a special premium for a group of double and single Petunias, and a new seedling Geranium....To Wm. Bennett, Flatbush, L. I., was also adjudged a special premium for a collection of Fancy Pelargoninms, and a collection of ornamental and variegated-leaved plants.....A special premium was awarded to John Bush, Tremont, N. Y., for a fine collection of Stove and Greenhouse plants, and the same to Wm. Wilson, Astoria, L. I., for a similar collection..... A special premium also went to F. Rosenbeck, Bayonne, N. J., for a group of Begonias of the "Rex" section.

William A. Burgess, Glencove, L. I., as last year, distanced all others in the way of Roses, taking the prizes for the best display; for the best 12 blooms Mareschal Niel, and the best 12 Hybrid Perpetual Roses....R. B. Parsons & Co., Flushing, L. I., had the best 12 hardy Azaleas, and took the prize....Thos. Hogg, Yorkville, N. Y., exhibited cut flowers of Magnolia hypoleuca, and was awarded a special.

Frederick Gordon, 26 Broad St., New York, had the best basket of cut flowers, and took the prize in that line....A. McConnell, 733 6th Av., New York was awarded for the best pair of hand Bouquets....Mrs. W. I. Davidson, Brooklyn, N. Y., took the lead for best funeral design in flowers, and best Button-hole Bouquets..... To I. G. Beauchamps & Sons, 85th St., New York, the prize for best design in cut flowers.

John Finn, Tremont, N. Y., had the best 6 bunches, and John Egan the best 2 bunches of Hot-house Grapes.

B. K. Bliss & Sons, 34 Barclay St., N. Y., were awarded for best collection of Potatoes. The "Snowflake" attracted particular attention....The best collection of Vegetables was shown by Geo. Tait, Inwood, N. Y., and took the prize....Edward Huckins, Mt. Vernon, N. Y., had fine specimens of forced Peaches and Nectarines, worthy of a premium....Chas. Atkins, Inwood, N. Y., received an award for a brace of finely grown "Telegraph" Cucumbers.

The Report of the Special Exhibition of Strawberries and Roses, held on June 13th and 14th, comes just too late to be given this month. The exhibition was highly successful, and surprised the managers by its extent and variety, and the prizes were widely distributed.

What is a Thorough-bred?

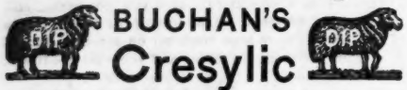
Prof. G. E. Morrow, of the Illinois Industrial University, writes: I have no wish to be considered overly critical, nor given to pointing out distinctions without differences; hence must ask you to reconsider your decision that there is no difference between a thorough-bred Short-horn and one having five crosses of pure bulls. So far as the United States are concerned, animals imported from Great Britain are considered entitled to record in our American Short-horn Herd-books, if they have four or five crosses. Years ago American-bred animals, with even a less number of crosses, were recorded, but now this is not the case, and the reason the question is one of importance is, that there are thousands of animals in this country which have five or more crosses of pure-bred, at least recorded, bulls, yet which are not eligible for entry in either of the American Short-horn Herd-books. The intrinsic value of these animals is not affected by this fact, but their selling value is greatly affected by it, as they are not regarded as thorough-bred by breeders. As a matter of personal opinion, I do not like the American rules, believing it would be more just, and a help to the more general introduction of improved stock, if not only in the case of Short horns, but also in that of all classes of cattle, a fixed number of crosses, and I would be content with five for cows, should entitle an animal to record, and to be considered as a full-blood, pure-bred, or thorough-bred—the terms being synonyms, as used by breeders of Short-horns. There are no thorough-bred cattle of any of our improved breeds, if we insist on a literal definition of the word. Whenever an animal possesses the distinctive characteristics of a breed, and uniformly transmits them to its offspring, it is entitled to membership in that breed; and five crosses, as a general rule, give this possession and power of transmission. Many prominent British herds of Short-horns have been built up on a foundation of good cows, without pedigree, and sometimes without Short-horn blood, by the continued use of pedigreed bulls. If such a rule existed here, as does in England, with regard to recording Short-horns, many farmers would be encouraged to begin a course of systematic good breeding, who do not now, because they see that, however many crosses they put on their present stock of cows, the progeny will still rank as only grades. But my opinion does not change the facts, and if any one buys an American bred cow, having five Short-horn crosses, and not running to an imported animal on the dam's side, he will not be buying a "thorough-bred" as the word is interpreted by the editors of the Herd books or the breeders of Short-horns.

[We do not see, so far as the English Herd-book is concerned—and to that extent the American Herd-book is also involved—that there is any difference between a thorough-bred Short-horn, and one having five crosses. If five crosses, with the limitation that it must be an imported animal, entitle to entry in the American Herd-book, then five crosses make an animal a thorough-bred. Why a rule that is good enough for England is not good enough here, is difficult to understand, unless on the principle that "a prophet is not without honor save in his own country," etc. The restriction against the admission of native-bred stock of five crosses, is what we have all the time been protesting against.—ED.]

The Manufacture of Compressed Meats. —A New Industry.

Many circumstances are conspiring to forward the interests of stock-breeders and graziers. The export of dressed beef and mutton, and of live cattle and sheep is gradually-increasing, and promises, not only to make an outlet for all our surplus stock, but to exert a favoring influence on the steadiness of prices in the home market. A new business is now growing into importance as an element of our foreign export trade, it having already reached respectable proportions in the domestic trade. This is the preparation of compressed, cooked meat, put up in cans of various sizes, from 2 to 14 pounds. This manufacture was begun three or four years ago by the Wilson Packing Co., of Chicago, who prepared fresh and salted beef, beef-tongues, and ham, in conical shaped cans of such a character that their contents could be turned out in a solid, shapely mass, perfectly presentable on the table without further preparation. This prepared meat met a popular want and an extensive demand, but, as might be expected, there was some competition from other manufacturers. Heretofore, canned meats have been put up loosely in the cans, and when turned out for consumption, presented a sodden, disagreeable mass, which was deficient in flavor. The compressed meats, on the contrary, are solidly packed, and free from liquid, and they retain all the savor and fresh taste of the best prepared food. Consequently the consumption of all other kinds than these has almost entirely ceased in this country, while foreign consumers are beginning to appreciate the better quality of these meats. This foreign demand, just now in its infancy, calls for greatly increased facilities for manufacture, and the proportions which this new business have assumed, will surprise those unfamiliar with it. For instance, two Chicago manufacturers, alone, produce 750,000 cans per month, using nearly 4,000 cattle weekly, and employing a large number of men and women. One of the factories referred to, employs 700 men and 150 girls, paying $30,000 monthly in wages, and the floors of their packing house cover four acres. The companies own their own slaughter-houses, and the meat is cut up and selected for cooking under the closest supervision. After the best has been cut up, it is cooked by steam in wooden vats, to prevent any possibility of unwholesome taint from metallic surfaces; and when thoroughly cooked, the meat is drained from liquid, pressed tightly in the cans, and sealed hermetically. It will thus remain in perfect condition for many years, retaining its flavor and succulency indefinitely. The convenience of food thus prepared, for domestic use in summer time, is very great, and it is not surprising, that in foreign countries it meets with a ready sale. Recently we noticed that in one week 11,270 cases of these compressed meats, each case being equivalent to one sheep, were received at Liverpool from the United States. Each case contained twelve four-pound cans, so that this shipment weighed over 500,000 pounds, or 250 tons of meat, free from every particle of inedible or indigestible matter. In some weeks 20,000 cases are exported, so that this was below the average business. It is expected that the present war in Europe and Asia will greatly increase the foreign demand. And this is but one of the new outlets for American meat.

The Best and Cheapest.



BUCHAN'S
Cresylic
SHEEP DIP.

Patented May 28th, 1867, Re-issued July 30th, 1872.

A Saponaceous Compound with Cresylic and Carbolic Acid.

For Preventing and Curing the Scab and all parasitic diseases of the Skin. Will destroy Lice, Ticks, Fleas, &c.

Is beneficial to the general health and condition of the flock. The use of this **DIP** will cleanse and whiten the Fleece—also increased the growth or weight sufficient to be a full equivalent for the cost of the Compound.

This Preparation is Warranted to be **entirely harmless and free from all poisonous** Compounds, and will positively do all that we claim for it. Put up in packages of 1, 5, 10, 50, 100, and 200 pounds.

Buchan's Cresylic Ointment.

Certain Death to the Screw Worm or Grub.

It not only destroys the worms, but cleanses and quickly heals up the offensive sores made by it.

No fly will attack a wound to which this preparation has been applied. Sheep which rarely recover from the attack of the worm under the ordinary treatment, are quickly cured by this application. In solution, this ointment will be found invaluable for healing Saddle Galls, and all abrasions of the skin of animals.

For further particulars, send for price lists and circulars to

KIDDER & LAIRD,
83 John Street, New York.

AMERICAN
VETERINARY COLLEGE.

INCORPORATED 1875.

141 West 54th St., betw. 6th & 7th Avs.,
NEW YORK CITY.

The regular course of Lectures in this Institution will commence on Wednesday, 3d of October, 1877, and terminate late in Feb., 1878.—The Spring course will begin on March and last until middle May.

Apply for Particulars and Circulars to

A. LIAUTARD, M.D.V.S.,
Dean of the Faculty.

FARMER'S
VETERINARY ADVISER,

By PROF. I. LAW, Cornell University, Ithaca, N. Y.

"The best work on the diseases of animals in the English language."—*Country Gentleman.*

Sent by mail from the Author for **$3.**

BEACON FARM, *Northport, Long Island,*
BREEDERS OF
Alderney and Ayrshire Cattle,
COTSWOLD SHEEP & BERKSHIRE SWINE.

Also FANCY POULTRY of choicest kinds, bred from the best stock. Address

J. N. ROBINS, Manager.

Colley Sheep Dogs,

which were awarded the highest Diploma and Medals at the Centennial Exhibition at Philadelphia in 1876.

For sale by **WILLIAM CROZIER,**
Northport, L. I., N. Y.

DAY'S
AUTOMATIC INCUBATOR.

Highest Centennial Award. Chickens hatched and reared summer and winter. Machine used as Incubator and Artificial Mother at same time. Capacity, 220 eggs. Price, $50. See July *Agriculturist*, 1876. Address

DAY BROS. & CO.,
92 Linden Avenue, Baltimore, Md.

SOUTHERN POULTRY JOURNAL.

A large, handsomely illustrated Magazine, devoted exclusively to Poultry. Price only $1 per year. Send 10 cents for sample copy to

SOUTHERN POULTRY JOURNAL CO., Louisville, Ky.

FRIENDS, if you are in any way interested in
BEES or HONEY,

we will with pleasure send you a sample copy of our **Monthly GLEANINGS IN BEE CULTURE,** with a descriptive price list of our latest improvements in **Hives, Honey Extractors, Artificial Comb, Section Honey Boxes,** all Books and Journals, everything pertaining to Bee Culture. *Nothing patented.* Simply send your address on a postal card, *written plainly*, to

A. I. ROOT, Medina, Ohio.

HAVE YOU GOT LICE?

on your chickens or fowls, or any other insects troubling you. If so, send 25 or 50 cts. for the **Continental Insect Powder**—the surest cure known. Also Houdan eggs at $2.00, and Spangled Leghorn at $3.00 per doz. Send for Circular. T. L. HALLWORTH, Box 1770, Boston, Mass.

FOWLER'S PATENT
"ECONOMY"
Iron Feeder & Water Dish.

We take our food and drink from Fowler's Economy Dish, it keeps so clean and wholesome.

Three sizes, for all ages, from chicks to full grown fowls. Keeps food or water clean, no chance for waste, and cannot be overturned.—No poultry-house or run is complete without a set of these dishes.

Send for Circular. Agents can make money selling them.

Address, **SANFORD & KELLOGG,**
Manufacturers' Agents,
Room 4, No. 337 Chapel St., New Haven, Conn.

High Class Poultry.

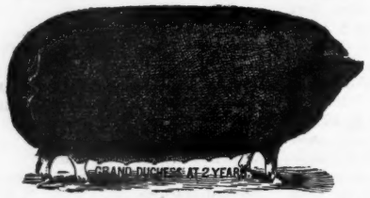
Light and Dark Brahmas, Partridge and White Cochins, Brown and White Leghorns, Houdans, and G. S. Bantams. For sale at all seasons, at reasonable prices. Eggs, securely packed in new baskets, $3.00 per 13, or $5.00 for 26. Please state what you want. Send for Circular.

GEO. S. JOSSELYN, Fredonia, N. Y.

J. W. REYNOLDS, Cuckoo, Va., Breeder, Shipper, and Importer of **GAME AND OTHER FOWLS.** Eggs in season.

Black Bass for stocking ponds—**Pekin Ducks, Bronze & Narragansett Turkeys,** Light Brahmas. **Jersey Cattle,** A. J. C. C. R., and Cotswolds, at low prices. Address W. CLIFT, Mystic Bridge, Ct.

MAGIE OR POLAND CHINA.



D. M. MAGIE, Oxford, Butler Co., Ohio.

Originator and Breeder of the Famous Magie or Poland China Hogs.

Pigs for sale at all seasons of the year. Sows in pig to my best boars, for sale. Premium show stock of the finest quality, for sale at reasonable prices. Parties wanting the Magie or Poland China stock *pure* should send to headquarters, and address me as above.

Please state where you saw this advertisement.

SUFFOLK PIGS.

Two full-blooded Suffolk boar pigs, eight months old. Price $25 each. Also one Suffolk sow pig, six months old. For sale or exchange. ALEXANDER HYDE, Lee, Mass.

PREMIUM CHESTER WHITE, BERKSHIRE and **ESSEX PIGS,** bred and for sale by GEO. B. HICKMAN, West Chester, Chester Co., Penn.

Also fancy poultry. Send stamp for circular and price list.

BERKSHIRE PIGS.

Most fashionable Pedigree. Rock bottom prices.
D. H. GOODELL, Antrim, N. H.

Purebred Calves, Chester White, Berkshire and Yorkshire Pigs, Scotch, Skye, and Shepherd pups, Poultry and Pigeons, all of the finest imported strains, bred and for sale by Francis Morris, Morton, Del. Co., Pa. Send for circular.
FRANCIS MORRIS, P. O. Box 2292, Philadelphia.

NEW AND ENLARGED EDITION of our **BREEDERS' MANUAL,** containing 56 pages valuable reading, besides 16 full-page stock cuts from life. *Just out!* Price 25 cents. Choice thoroughbred Pigs, Sheep, Calves, Poultry, &c. *We guarantee satisfaction.* SEED WHEAT. New Crop TURNIP SEEDS, Flat Dutch, Red Top and Ruta-Bags, only *55 cents per pound, post-paid.* Six sample packages farm seed, free for two 3-cent stamps. PRICKLEY COMFREY. Circulars free.

BENSON & BURPEE'S Seed Warehouse, 223 Church St., Philada.

N. GUILBERT,

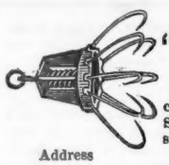
Evergreen Farm, Gwynedd, Pa.,

Importer and Breeder of Improved Blooded Live Stock, Horses, Cattle, Cotswold and Southdown Sheep, Chester, Berkshire and Yorkshire Pigs, Toulouse, Bremen, Hong Kong, White China and Wild Geese, Cayuga, Rouen, Aylesbury, Pekin and Musk Ducks, Bronze, Blue, Buff and White Turkeys, Dorkings, Brahma, Cochin, Guinea and all other Fowl, Deer, Swans, Peacocks, Pigeons, Eggs, &c., at low prices. Best Breeds of Dogs and Maltese Cats, Rabbits, Ferrets, Guinea Pigs, White Mice, &c. Song Birds of all kinds.

Fine Milch Cows always on hand.

Newfoundland Pups of Centennial First Premium Stock.

Hall Bros., Ann Arbor, Mich., make a specialty of breeding the finest strains of Essex, Suffolk, Berkshire, and Poland China pigs. *Prices ½ off card rates.* Satisfaction guaranteed. A few splendid pigs, gilts, and fine boars now ready.



SMITH'S
"Eagle Claw of '76."

A safe and ingenious device for catching fish, animals, game, &c. Sample, 50 cts., by mail, or send stamp for circular.

Address **EAGLE CLAW CO.,**
713 Sansom St., Phila., Pa.

For Sale at Fleetwood Stock Farm, near Frankfort, Ky., Thoroughbreds, Trotters, Jersey Cattle, &c. Address J. W. HUNT REYNOLDS.

SAW MILL FOR THE PEOPLE.

THIS patent portable Muley Saw Mill is adapted to any locality, will saw any kind of logs, and will do as much work (power and hands being considered) as the best Circular Mills. Its frame, head-blocks, and working parts are of the most substantial and permanent kind, being made entirely of iron and steel. It is usually set up and started in from one to two days time. It is generally driven by threshing engines of not exceeding ten horse power. It cuts from 2000 to 4000 feet of inch lumber per day. The Mill and Engine may conveniently be operated by two men. Send for circular.

INDIANAPOLIS IND. **CHANDLER & TAYLOR.**

BLAKE'S PATENT
Stone and Ore Breaker

Crushes all hard and brittle substances to **any required size.** Also, any kind of STONE for ROADS and for CONCRETE, &c.

Address BLAKE CRUSHER CO., New Haven, Conn.

Galvanized Cable Fencing.

Proof against **Cattle, Fire,** and **Rust.** Hundreds of miles erected. Handsome, durable, cheap.

PHILIP S. JUSTICE,
14 N. 5th St., Philadelphia, Pa.

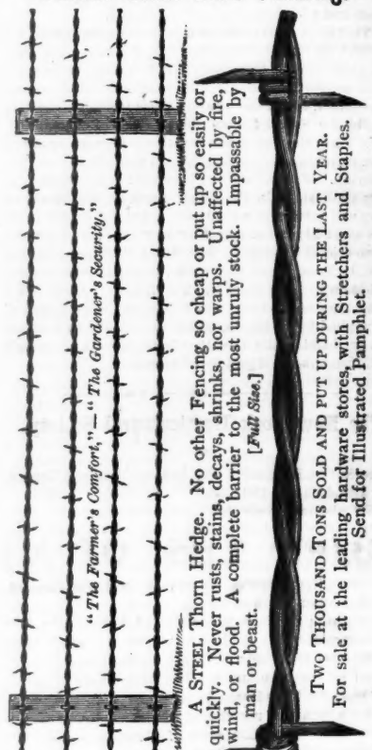
American Fence Manufacturing Company

furnishes the best and cheapest fence manufactured. *See April number* of the *American Agriculturist.*

Send for descriptive Circular.

Office, 86 Mangin St., N. Y.

Patent Steel Barb Fencing.



"The Farmer's Comfort," — "The Gardener's Security."

A STEEL Thorn Hedge. No other Fencing so cheap or put up so easily or quickly. Never rusts, stains, decays, shrinks, nor warps. Unaffected by fire, wind, or flood. A complete barrier to the most unruly stock. Impassable by man or beast.

[Full Size.]

TWO THOUSAND TONS SOLD AND PUT UP DURING THE LAST YEAR.

For sale at the leading hardware stores, with Stretchers and Staples. Send for Illustrated Pamphlet.

WASHBURN & MOEN MFG. CO.

Worcester, Mass.

Sole Manufacturers east of Chicago.

Warehouse: 42 CLIFF ST., NEW YORK.

THE
"DOMESTIC" ENGINE.
2 and 4 Horse-Power.
PRINCIPAL FEATURES.
Cold Bearings, Hardened Steel Pins, Casted Steel Connections, and all parts interchangeable.
WROUGHT-IRON BOILER.
Nothing Cheap but the Price.
F. F. & A. B. LANDIS,
Manufacturers, Lancaster, Pa.

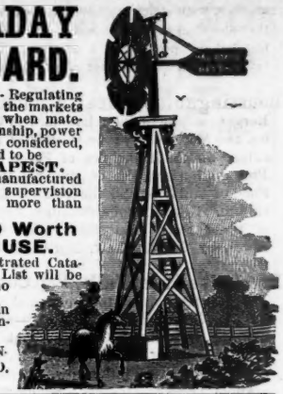
STEAM ENGINES

CLIPPER Vertical Engines, off and on wheels! Price on wheels, 6 Horse Power, $485. 8 Horse on wheels, Price $700. Dry Steam Horizontal Engines, 3 Horse Power Climax, on wheels, $925. Builders of Stationary Engines, 4 styles, from 6 to 200 Horse Power. Corlis's Engines, Extra Finish and cut off Engines. Crank Stationary, and Plain Finished Engines, Boilers, Circular Saw-Mills, &c. Successors to Utica Steam Engine Co., formerly Wood & Mann, Established 1857. We have the *largest* line of Engine Patterns in United States.
TAYLOR MANUFACTURING CO.,
Westminster, Maryland.
Good responsible Agents wanted.

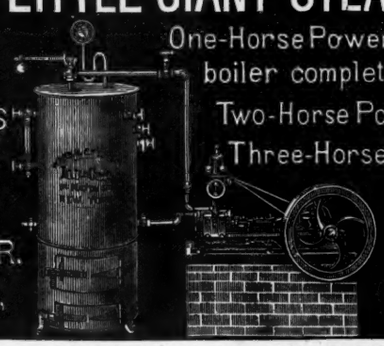
"ECLIPSE"
PORTABLE
FARM ENGINE.
(See illustration on page 240, June number.)
Send for Centennial Judges' Reports, and catalogues of Eclipse Engines, Stationary Engines, Boilers, Saw-Mills, &c., to FRICK & CO.,
Waynesboro, Franklin Co., Pa.

GEORGE PAGE & CO.
No. 5 N. SCHROEDER ST., BALTIMORE, MD.
Patent Portable & Stationary Engines

Patent Circular Saw Mills, Gang, Muley & Sash Mills, Grist & Flour Mills, Water Wheels, Shingle, Barrel & Woodworking Machinery, Tanite Emery Wheels and Grinders, Saws, Mill Supplies, &c., &c.
SEND FOR CATALOGUE & PRICES.

HALLADAY STANDARD.

The first Self-Regulating Wind Mill offered the markets of the world, and when material used, workmanship, power and durability are considered, it is acknowledged to be
THE CHEAPEST.
It has been manufactured under immediate supervision of inventor for more than twenty-two years.
$3,000,000 Worth NOW IN USE.
A 58 page Illustrated Catalogue with Price List will be sent free to all who make application.
Agents wanted in all unassigned counties.
U. S. WIND ENGINE & PUMP CO.
BATAVIA, ILL.

W. S. BLUNT'S
UNIVERSAL
FORCE PUMPS.
Secured by letters patent.
These pumps have enormous power, and are for the house or for **out-door wells** of any depth. They are constructed with special regard to strength, ease of working, and durability. They can be immediately changed from lift to force pumps, and the air chamber can be revolved, so as to allow the handle to work at any desired angle with the spout. Having close tops, they cannot be tampered with. Attention is called to our new elegant pattern **DEEP WELL non-freezing FIRE PUMP. Also, Blunt's Sand Vacuum Chambers.**—A complete protection against sand or gritty water in **dug or driven wells, pits, mines, and rivers. For hand or steam pumps,** all sizes, from 1¼-inch to 4-inch suction pipe.
Send for circulars to
NASON M'F'G CO.,
71 Fulton and 71 Beekman St, New York.
Western Agency, **Newton & Hale, Chicago.**
Pacific Coast Agency, **Dunham, Carrigan & Co., San Francisco, Cal.**

SNYDER'S LITTLE GIANT STEAM ENGINE.
The Best SMALL POWER ENGINES IN THE COUNTRY.
Manufactured by
WARD B. SNYDER.
84 Fulton Str.
NEW YORK.

One-Horse Power, with tubular boiler complete, only.. $150.
Two-Horse Power .... 200.
Three-Horse Power .. 250.
Call and Examine OR SEND FOR AN ILLUSTRATED CATALOGUE.
See pages 259 and 260 *Am. Agriculturist*, July number, 1876.

3,000 LBS. OF MILK YIELD $54.20.

NEW METHOD OF MANUFACTURE GIVEN.
New Apparatus and Furnishings for Cheese and Butter Factories.
Especially approved by Prof. ARNOLD and all who have seen same.

Parties should see us before buying Return Flue Boilers for Cheese Factories, etc.; also, Creamery and milk Vats, as we have greatly reduced prices.
ECONOMIZER RETURN-FLUE BOILERS, FROM 2 1-2 TO 30 HORSE POWERS.
Fire entirely surrounded by water. Sixteen Boilers and Boilers and Engines sold during the months of January and Feb. The ECONOMIZER BOILERS are manufactured for us (in duplicate parts), under United States Patents, by Porter Manufacturing Company, Syracuse, N. Y., B. K. WHITE, President, thus securing perfection and uniformity.
The demand is unprecedented, even in these dull times. ☞ Send for Circulars.
WHITMAN & BURRELL, Little Falls, N. Y.,
Manufacturers of HUBBELL & CO.'S NEW GANG CHEESE PRESS, with right to use the Bandager and all Patents Guaranteed.
Agents for Annattoine and Johnson's Patent Fly-Proof Cheese Grease.

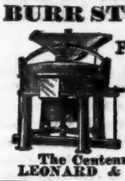
THE DRIVEN WELL.
TOWN and COUNTY privileges for making **Driven Wells** and selling Licenses under the established **American Driven Well Patent,** leased by the year to responsible parties, by
WM. D. ANDREWS & BRO.,
NEW YORK.

GARDEN ENGINE AND FIRE EXTINGUISHER.—Protects Buildings from Fire, and Trees, Vines, etc., from Insects. Throws water 50 ft. Easily carried. No Dwelling, Country Home, or Factory should be without the Fountain Pump. Send for large Illustrated Circular. J. A. WHITMAN, Sole Proprietor and Manufacturer, Providence, R. I.

Agricultural
Insurance Company, of Watertown, N. Y.
Twenty-four years old. Total assets for the security of Policy holders January 1st, 1877, $1,050,622.00. Insures only Farm Property and Residences against fire and lightning. Takes no business risks.

THE UNION RAILWAY

HORSE POWER.
Producing much more power than other railway powers, with *much less elevation.*
☞ *Send for Descriptive Circular.*
Wm. L. Boyer & Bro.,
Philadelphia, Pa.

BURR STONE GRIST MILLS
AND
Flouring Machinery.

Catalogue and Price List Free.

The Centennial Prize Medal and Diploma.
LEONARD & SILLIMAN, Bridgeport, Conn.

Play and Profit in my Garden.
By E. P. ROE,
Author of "Barriers Burned Away," etc.
NOTICES BY THE PRESS.
The author takes us to his garden on the rocky hill-sides in the vicinity of West Point and shows us how out of it, after four years' experience, he evoked a profit of $1,000, and this while carrying on pastoral and literary labors. . . . . It is very rare that so much literary taste and skill are mated to so much agricultural experience and practical good sense. —*Harper's Magazine.*
This book is as poetical as it is practical. Still he is no dreamer. He goes into every essential detail with as much minuteness and precision as if he were writing a manual for the practical farmer. Indeed few works professedly devoted to agriculture give more sound and valuable information on the secret of winning golden harvests from the soil than this brief idyllic sketch.—*N. Y. Tribune.*
Price, Post-paid - - - - $1.50

Practical Hints on the Selection and Use of the Microscope.
A Practical Book intended for Beginners.
By JOHN PHIN, C. E. Price, post-paid, 75 cents.

Plain Directions for Acquiring the Art of Shooting on the Wing.
With useful hints concerning all that relates to Guns and Shooting, and particularly in regard to the *art of loading so as to kill.* To which has been added several valuable and hitherto secret recipes of great practical importance to the sportsman. By an Old Gamekeeper.
Price, post-paid, 75 cents.

The Pistol as a Weapon of Defense in the House and on the Road.
HOW TO CHOOSE AND HOW TO USE IT.
Price, post-paid, 50 cents.

Plain Directions for the Construction and Erection of Lightning Rods.
A work, written not in the interest of any patent or special manufacture, but solely for the purpose of teaching any ordinarily skillful mechanic how to put up a rod that will really ensure safety, and of enabling every householder to decide whether or not his house is perfectly protected. By JOHN PHIN, C. E. Price, post-paid, 50 cents.

Either of the above books sent post-paid on receipt of price by
ORANGE JUDD CO., 245 Broadway, New York.

Any of the good books in the following list will be forwarded by mail, *post-paid*, on receipt of price.

Allen's American Cattle.....$2.50
Their History, Breeding, and Management. This book will be considered indispensable by every breeder of live-stock. The large experience of the author in improving the character of American herds adds to the weight of his observations, and has enabled him to produce a work which will at once make good its claims as a standard authority on the subject. An excellent feature of the volume is its orderly, methodical arrangement, condensing a great variety of information into a comparatively small compass, and enabling the reader to find the point on which he is seeking light, without wasting his time in turning over the leaves. By LEWIS F. ALLEN. Illustrated. Cloth, 12mo.

Allen's New American Farm Book...$2.50
Allen's American Farm Book, (the former edition of the present volume), has been one of the standard farmers' hand-books for twenty years; it is still a valuable book, but as its author, Mr. R. L. Allen, could not give time to its revision, this was undertaken by his brother, Hon. Lewis F. Allen, the distinguished farmer of Erie county, editor of the American Shorthorn Herd-Book. The present edition of the work is greatly enlarged, and full of suggestions from the rich experience of its editor and reviser, and is called the NEW AMERICAN FARM BOOK. Originally by RICHARD L. ALLEN, Revised and greatly enlarged by LEWIS F. ALLEN. Cloth, 12mo.

American Weeds, and Useful Plants.$1.75
An important Work for every Cultivator—Farmer, Gardener, etc.; being an Enumeration and Description, (with accurate illustrations), of the WEEDS and PLANTS found in American Fields and Gardens, which meet the observation, or require the attention of Cultivators; with practical suggestions for their Eradication when needed. While *practical* in its character, it includes both the common and botanical names and characters of the Weeds and Plants, with a Popular Account of the Structure of Plants. By WM. DARLINGTON, M.D., and Prof. GEO. THURBER. Thoroughly Illustrated with 277 Engravings. Cloth, 12mo.

Atwood's Country and Suburban Houses. $1.50
This work is finely illustrated with about one hundred and fifty engravings, and gives instruction upon all points, from the selecting of a place to build, to the perfect completion of the house. By D. T. ATWOOD, Architect. Cloth, 12mo.

Barry's Fruit Garden.....$2.50
Notices by the Press: "The author writes from his own practical experience; and that experience is of no ordinary character, being the result of more than thirty years' work at the head of the largest nursery in America, where every operation is conducted with eminent skill."—"It explains all the minutiæ of fruit-gardening, even to the implements, copiously illustrated by engravings, so that the merest novice need not err; gives descriptions of all the different kinds of fruit that can be raised in our climate, in every stage of their lives, from the germ to the fruit-bearing period, with instructions in pruning and grafting, in a most satisfactory manner. The chapter on grapes alone is worth more than the price of the book."—"Mr. Barry has long been known as an authority upon fruit culture, and this volume of 490 pages, with a full and carefully prepared index, gives the latest results of his experience." By P. BARRY. Illustrated. Cloth, 12mo.

Bommer's Method of Making Manures.25
A method for the manufacture of a superior quality of manure; both from the vegetable and mineral substances, with strict economy and great dispatch; further showing the best mode of preparing vegetable and mineral composts, and a diversity of processes. By GEORGE BOMMER. Paper cover, 8vo.

Boussingault's Rural Economy.....$1.60
Rural Economy in its relations with Chemistry, Physics, and Meteorology; or Chemistry Applied to Agriculture in the Principles of Farm Management, the Preservation and Use of Manures, the Nutrition and Food of Animals, and the General Economy of Agriculture. By J. B. BOUSSINGAULT, Member of Institute of France, etc. Translated, with Introduction and Notes, by GEORGE LAW, Agriculturist. Cloth, 12mo.

Brackett's Farm Talk, Pap.Cov.50, Cloth.75
A Series of Articles in the Colloquial Style, Illustrating Various Common Farm Topics. —Contents: Guess Farming. — Pedigree Corn. — About Haying.— Fancy Farmers.—When to sell Produce.—Butter Making—Getting Ready for the Cattle Show.—Agricultural Colleges. —Apple Trees and Insects.—Middle Men.—Taking the Papers.—The 'Ologies.—An Evening's Chat.—Planting for Posterity.—Road Making and Breaking.—In the Barn.—How Trees Grow.—Pigs and Poultry.—Farm Fences.—Out in the Fields. By GEO. E. BRACKETT.

Breck's New Book of Flowers, or Flower Garden.....$1.75
In which are described the various Hardy Herbaceous Flowers, Annuals, Shrubby Plants, and Evergreen Trees, with Directions for their Cultivation. New edition, revised and corrected. By JOSEPH BRECK. Cloth, 12mo.

Brill's Farm Gardening and Seed Growing.....$1.00
Seed-Growing is an increasing business in this country, and American-grown seeds are rapidly taking the preference. Heretofore we have had no work that gave directions for growing and saving the seed and preparing it for market. To the farmer who wishes to grow his own seed, this book will be found a profitable investment. A Book useful for every farmer, gardener, and tiller of the soil. By FRANCIS BRILL. Cloth, 12mo.

Broom Corn and Brooms, Paper cover, 50 Cloth, 75.
A Treatise on Raising Broom-Corn and Making Brooms on a Small or Large Scale. Written and compiled by the editors of the *American Agriculturist*. Contents: Introduction.—Broom-Corn and its Varieties.—Description of the Plant.—Introduction and Extent of Culture. —Secondary Products.—Seed, Fodder and Stalks.—Cultivation. — The Land.—Rotation.—Manure.—Hills or Drills.—Quantity of Seed to the Acre.—Time of Planting.—Cultivating.—Implements.—Thinning.—Time for Harvesting.—Harvesting Dwarf Corn.—Lopping, Bending or Breaking.—Crooked Brush.—Tabling.—Cutting. Preparing for Market.—Curing the Brush.—Scraping or Removal of the Seed.—Assorting the Brush.—Drying or Curing House.—Racks for Drying.—Curing.—Curing and Handling the Crop on the Large Scale.—Baling.—The Press.—Marketing.—Commissions and Charges.—Profits of the Crop.—General Conclusions.—Growing on the Large Scale.—What a Retired Grower says.—Making Brooms.—Home-Made Brooms.—Another Method.—Making Brooms by Machinery.—Extent of the Manufacture. Illustrated. 12mo.

Buell's Cider Maker's Manual.....$1.50
A Practical Hand-Book, which embodies Treatises on the Apple; Construction of Cider Mills, Cider Presses, Seed Washers, and Cider Mill Machinery in General; Cider Making; Fermentation; Vinegar Manipulation, etc., etc. By J. S. BUELL. Cloth, 12mo.

Caldwell's Agricultural Qualitative and Quantitative Chemical Analysis$2.00
This work is very thorough, beginning with the preparation of reagents, and giving the most approved method of manipulation. Professor Caldwell modestly calls himself the editor, but his book shows that he has not contented himself with editing the works of others, but has given much of his own experience. Edited by C. C. CALDWELL, Professor of Agricultural Chemistry in the Cornell University. Cloth, 12mo.

Copley's Plain and Ornamental Alphabets. $3.00
Giving examples in all styles, together with Maps, Titles, Borders, Meridians, Ciphers, Monograms, Flourishes, etc., adapted for the practical use of Surveyors, Civil Engineers, Draughtsmen, Architects, Sign Painters, Schools, etc. By F. S. COPLEY. Royal Quarto.

Dadd's American Cattle Doctor.....$2.50
A Complete Work on all the Diseases of Cattle, Sheep, and Swine, including every Disease peculiar to America, and embracing all the latest Information on the Cattle Plague and Trichina; containing also a Guide to Symptoms, a Table of Weights and Measures, and a List of Valuable Medicines. By GEO. H. DADD, V. S., Twenty-five years a Leading Veterinary Surgeon in England and the United States, and author of the 'American Reformed Horse Book.' Octavo. Illustrated.

Dadd's American Cattle Doctor....$1.50
To Help Every Man to be his own Cattle-Doctor. A work by GEO. H. DADD, M.D., Veterinary Practitioner; giving the necessary information for preserving the Health and Curing the Diseases of Oxen, Cows, Sheep, and Swine, with a great variety of original Recipes, and valuable information on Farm and Dairy Management. Cloth, 12mo.

Dadd's American Reformed Horse Book. $2.50
A Treatise on the Causes, Symptoms, and Cure of every Disease incident to the Horse, including all Diseases peculiar to America, and which are not treated of in the works based upon the English works of Youatt, Mason, and others. Embracing also full details of Breeding, Rearing, and Management on the Reformed System of Practice. By Prof. GEO. H. DADD, Veterinary Surgeon, Author of "Anatomy and Physiology of the Horse," and late Professor of Anatomy and Physiology in the Veterinary Institute of Chicago, and for over 25 years a Regular Practicing Veterinarian. Octavo.

Dadd's Modern Horse Doctor.....$1.50
Containing Practical Observations on the Causes, Nature, and Treatment of Diseases and Lameness of Horses; embracing recent and improved Methods, according to an enlightened system of Veterinary Practice, for Preservation and Restoration of Health. Illustrated. By GEO. H. DADD, M.D., Veterinary Surgeon. Cloth, 12mo.

Downing's Landscape Gardening...$6.50
A Treatise on the Theory and Practice of Landscape Gardening, adapted to North America; with a view to the Improvement of Country Residences. Comprising historical notices and general principles of the art, directions for laying out grounds and arranging plantations, the description and cultivation of hardy trees, decorative accompaniments of the house and grounds, the formation of pieces of artificial water, flower gardens, etc.—with Remarks on Rural Architecture by the late A. J. DOWNING, Esq. With a Supplement, containing some remarks about country places, and the best methods of making them; also an account of the newer deciduous and evergreen plants, lately introduced into cultivation, both hardy and half-hardy, and a second Supplement, bringing down to the present time some brief account of the various trees and shrubs which have been introduced since the former Supplement was published, (in 1859), by HENRY WINTHROP SARGENT. Beautifully Illustrated, with thirty-nine engravings on wood, six on stone, and six on steel, one of which is a fine portrait of the author. Cloth, 8vo.

Eastwood's Cranberry Manual.....75
Giving directions for the cultivation in different localities, with illustrations and descriptions of varieties. By BENJ. EASTWOOD. Cloth, 12mo.

Flax Culture.....30
A very valuable work, containing full directions, from selection of ground and seed to preparation and marketing of crop, as given by a number of experienced growers. Paper Cover, 8vo.

Fuller's Grape Culturist.....$1.50
This is one of the very best of works on the Culture of the Hardy Grapes, with full directions for all departments of Propagation, Culture, etc., with one hundred and five excellent engravings, illustrating the various operations of Planting, Training, Grafting, etc. By ANDREW S. FULLER, Practical Horticulturist. Cloth, 12mo.

Fuller's Small Fruit Culturist.....$1.50
Mr. Fuller has been so long identified with the culture of small fruits, that it is unnecessary to speak of his qualification as a teacher. This book covers the whole ground of Propagation, Culture, Varieties, Packing for Market, etc. The work is most abundantly illustrated. By ANDREW S. FULLER. Cloth, 12mo.

[*Continued on next page.*]

Fulton's Peach Culture.....$1.50
Among the fruits, the Peach, if not the most, is one of the most important of all. It is so easily raised, comes into bearing so soon, and is so delicious as well as beautiful, it is impossible that it should not be a favorite. Living in the very center of the peach-growing district; sharing the common interest felt in the subject; deeply impressed with its importance to the individual planters themselves, and also to the community at large; and believing that a lasting benefit could be done to both, the author has been induced to prepare this work on peach culture. By JAMES ALEXANDER FULTON. Illustrated. Cloth, 12mo.

Gardening for the South.....$2.00
How to Grow Vegetables and Fruits. Though entitled "Gardening for the South," the work is one the utility of which is not restricted to the South. It is an admirable treatise on gardening in general, and will rank among the most useful horticultural works of the present day. To those living in the warmer portions of the Union, the work will be especially valuable, as it gives the varieties of vegetables and fruits adapted to the climate, and the modes of culture which it is necessary to follow. By the late WILLIAM N. WHITE, of Athens, Ga., with additions by Mr. J. VAN BUREN and Dr. JAMES CAMAK. Illustrated. Revised and newly stereotyped. Cloth, 12mo.

Geyelin's Poultry Breeding, In a Commercial Point of View.....$1.25
As carried out by the National Poultry Company, (limited), Bromley, Kent. Natural and Artificial Hatching, Rearing, and Fattening, on entirely new and scientific principles, with all the necessary plans, elevations, sections, and details, and a notice of the Poultry Establishments in France. With twenty-seven Illustrations. By GEO. KENNEDY GEYELIN, C. E., with a preface by CHARLES L. FLINT. Cloth, 12mo.

Gregory on Squashes.....30
This little Treatise, which no Farmer or Gardener ought to be without, tells all about selecting the soil for Squashes; how much manure is necessary; how to prepare and plant; about hoeing and cultivating; setting of the fruit; ripening, gathering, storing, care during winter, etc. By JAMES J. H. GREGORY. Paper Cover, 12mo.

Guenon's Treatise on Milch Cows....75
An interesting work, giving new and peculiar directions, and many illustrative engravings, for determining by natural marks or external signs, the quality and quantity of milk a cow will give, length of time she will continue in milk, etc., with introductory remarks of forty pages on the Cow and Dairy. Cloth, 8vo.

Harris' Insects Injurious to Vegetation. Plain, **$4.00,** Colored Plates,.....**$6.50**
Enlarged and Improved. With additions from the author's manuscripts and original notes. Illustrated by Engravings drawn from Nature by CHARLES L. FLINT, Secretary of the Massachusetts State Board of Agriculture. *This work is fully illustrated with two hundred and seventy-eight fine wood-cuts, and eight beautiful steel plates, full-page size, containing ninety-five figures.* Published in two beautiful editions; one plain, with steel engravings, extra cloth; the other in extra cloth, beveled boards, red edges, engravings colored with great accuracy. By the late THADDEUS WILLIAM HARRIS, M.D. Octavo, 640 pages. Cloth, 8vo.

Harris on the Pig.....$1.50
Breeding, Rearing, Management, and Improvement. This Treatise upon breeding, rearing and management of swine is by one thoroughly familiar with the whole subject. The points of the various English and American breeds are thoroughly discussed, and the great advantage of using thorough-bred males clearly shown. The work is equally valuable to the farmer who keeps but few pigs, and to the breeder on an extensive scale. By JOSEPH HARRIS. With numerous Illustrations. Cloth, 12mo.

Henderson's Gardening for Profit. $1.50
A now well known and standard work on Market and Family Gardening. It is finely illustrated, and is the first book of the kind prepared by a Market Gardener, in this country. The author's successful experience of more than twenty-five years, enables him to give a most valuable record. It is an original and purely American work, and not made up, as books on gardening too often are, by quotations from foreign authors. Everything is made perfectly plain, and the subject treated in all its details, from the selection of the soil to preparing the products for market. By PETER HENDERSON. Cloth, 12mo.

Henderson's Gardening for Pleasure.$1.50
This work is prepared to meet the wants of the amateur in in-door and out-door gardening. It is one of the best guides to Window Gardening we know of. The work includes fruit, vegetable, and flower-gardening, greenhouses and graperies, window gardening, and Wardian cases. By PETER HENDERSON, author of "Gardening for Profit" and "Practical Floriculture." Illustrated. Cloth, 12mo.

Henderson's Practical Floriculture. $1.50
A Guide to the Successful Propagation and Cultivation of Florists' Plants. In this work, which has everywhere become so deservedly popular, not only is the whole "art and mystery" of propagation explained, but the reader is taught how to plant and grow the plants after they have been propagated. The work is not one for florists and gardeners only, but the amateur's wants are constantly kept in mind, and we have a very complete treatise on the cultivation of flowers under glass, or in the open air, suited to those who grow flowers for pleasure, as well as those who make them a matter of trade. The work is characterized by the same radical common sense that marked the author's "Gardening for Profit," and it holds a high place in the estimation of lovers of floriculture. The new edition has been thoroughly revised by the author, and much enlarged by the addition of valuable matter. *Beautifully Illustrated.* By PETER HENDERSON, Author of "Gardening for Profit." Cloth, 12mo.

Herbert's Hints to Horse-Keepers....$1.75
This is one of the best and most thoroughly practical works on the Horse prepared in this country. A Complete Manual for Horsemen, embracing: How to Breed a Horse; How to Buy a Horse; How to Break a Horse; How to Use a Horse; How to Feed a Horse; How to Physic a Horse (Allopathy or Homœopathy); How to Groom a Horse; How to Drive a Horse; How to Ride a Horse, etc. By the late HENRY WILLIAM HERBERT, (Frank Forester.) *Beautifully illustrated throughout.* Cloth, 12mo.

Hop Culture.....30
Practical Details fully given, from the Selection and Preparation of the Soil, Setting and Cultivation of the Plants, to Picking, Drying, Pressing and Marketing the Crop. Plain Directions by Ten Experienced Cultivators. Illustrated with over forty engravings. A most valuable little work. Edited by Prof. GEO. THURBER, Editor of *American Agriculturist.* Paper Cover, 8vo.

Hoopes' Book of Evergreens.....$3.00
This valuable work posts up the present state of our knowledge upon the cone-bearing plants, or Coniferæ, of the botanist. Mr. Hoopes is one of those persons rarely met with—a practical cultivator, and a man of science at the same time. While his work gives us all the Coniferæ arranged in the classification of the botanist, it at the same time treats of the experience, not only of the author, but of American cultivators generally, with this large and important family of plants. By JOSIAH HOOPES. Illustrated. Cloth, 12mo.

Hooper's Dog and Gun, Paper Cover, **50.** Cloth, **60.**
"A Few Loose Chapters on Shooting," with some Anecdotes and Incidents, Notes on Guns, Choosing and Training Dogs; about Game, etc. By J. J. HOOPER, Montgomery, Ala. 12mo.

Hussey's National Cottage Architecture; or, Homes for Every One.....$6.00
With Designs, Plans, Details, Specifications, and Cost; with Working Scale, Drawings complete, so that Houses may be built direct from the book. Adapted to the popular demand for practical, handsome, and economical homes. By E. C. HUSSEY, Architect. Royal Quarto.

Johnson's How Crops Grow.....$2.00
A Treatise of the Chemical Composition, Structure, and Life of the Plant. This book is a guide to the knowledge of agricultural plants, their composition, their structure, and modes of development and growth; of the complex organization of plants, and the uses of the parts; the germination of seeds, and the food of plants obtained both from the air and the soil. Very full and accurate tables of analyses are given, and tables of the proportions existing between different principles, oily, starchy, or nitrogenous, in the same or different plants. The book is an invaluable one to all real students of agriculture. With Numerous Illustrations and Tables of Analysis. By Prof. SAMUEL W. JOHNSON, of Yale College. Cloth, 12mo.

IN PRESS.

One of the best books ever issued upon the special class of live-stock of which it treats.

Swine Husbandry.

A Practical Manual

FOR THE

Breeding, Rearing,

AND

Management of Swine,

AND THE

Prevention and Treatment of Their Diseases.

BY

F. D. COBURN,

A WESTERN PRACTICAL FARMER AND BREEDER.

ILLUSTRATED.

CONTENTS.

CHAP. I. Introductory.—CHAP. II. Value of the Hog Product.

BREEDS OF SWINE, THEIR CHARACTERISTICS AND WORTH.

CHAP. III. The Poland-Chinas.—CHAP. IV. The Chester Whites.—CHAP. V. The Berkshires.—CHAP. VI. The Suffolks.—CHAP. VII. The Essex.—CHAP. VIII. The Yorkshires.—Cheshires, or Jefferson County Swine, of New York.—Lancashires.—Victorias.—Neapolitans.—Jersey Reds.—Durocs.—CHAP. IX. Relative Merits of the Suffolk, Essex, and Berkshire. By E. W. Cottrel.

RAISING AND FATTENING SWINE.

CHAP. X. The Boar—How to Choose and How to Keep Him.—CHAP. XI. The Sow and Her Pigs.—CHAP. XII. Castrating and Spaying.—CHAP. XIII. Pasture and Summer Food.—CHAP. XIV. Fattening.—CHAP. XV. Cooking Food for Swine.—Food Cookers.—CHAP. XVI. Hog Houses and Pens.—CHAP. XVII. Slaughtering, Curing, and Preserving.—CHAP. XVIII. Some General Observations.—Rooting and its Prevention.—Ear Mutilation and Ear Marks.—Sows Eating their Pigs.—Quarrelsome and Fighting Hogs.—Condition of Sows for Breeding.—Is it Profitable to Cure Pork?—Reports of Remarkable Growth.—Feeding Cooked Wheat.—Hogging-off Corn Fields.—Relation Between the Prices of Corn and Pork.—The Most Profitable Hogs.—What are "Thorough-Bred" Swine.—Classifying and Judging at Fairs.—Giving Salt with Food.—Is the Enforced Hibernation of Hogs Practicable?—CHAP. XIX. Hog-Feeding and Pork Making. By Joseph Sullivant, Esq.

DISEASES OF SWINE, PRACTICAL INFORMATION AS TO THEIR CAUSES, SYMPTOMS, PREVENTION, AND CURE.

CHAP. XX. Diseases of Swine and Their Treatment—Introductory.—Anthrax Diseases or "Hog Cholera."—CHAP. XXI. The So-Called "Hog Cholera." By Doct. H. J. Detmers.—CHAP. XXII. The So-Called "Hog Cholera."—CHAP. XXIII. Various Diseases Common to Swine.—Worms.—Trichina spiralis.—Kidney Worms.—Measles.—Mange.—Lice.—Common Cough.—Pneumonia.—Quinsy or Strangles.—Nasal Catarrh.—Inflammation of the Brain, Epilepsy or "Blind Staggers."—Apoplexy.—Paroplegia.—Diarrhœa or Scours.—Constipation.—Eversion of Rectum.—Rheumatism. Loss of Tails.

PRICE, POST-PAID, $1.75.

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.

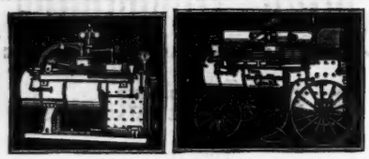
TEAS and COFFEES
AT WHOLESALE PRICES

In Lots to Suit Customers.

SPECIAL TERMS TO CLUB ORGANIZERS and those who devote whole or part of time in selling our goods.

SEND FOR NEW PRICE-LIST.

THE GREAT AMERICAN TEA COMPANY,
(P. O. Box 5643.) 31 and 33 Vesey St., New York.



Steam - Engines.
FOR 1877.

More effective and more complete, and more readily adapted to the various mechanical and agricultural uses than any other in the market. Practical improvements accumulated from twenty years' manufacturing experience, with reputation maintained and success established.

Send for Circulars, descriptive, and containing testimonials concerning our PORTABLE STATIONARY and AGRICULTURAL STEAM-ENGINES.

WOOD, TABER & MORSE,
Eaton, Madison Co., N. Y.

HO! FOR IOWA!!!
TO FARMERS, RENTERS, HIRED MEN, and all those wanting better lands in a climate unsurpassed and at cheaper prices than can be found elsewhere in the world. Send and obtain a descriptive pamphlet with maps and location of our 1,200,000 acres of R. R. land in Iowa, all adjacent to lines running direct to Chicago. Price only $5 and $6 per acre on R. R. time and terms. Half fare tickets from Chicago to the land and return. Cost allowed to purchasers. Call on or address IOWA R. R. LAND CO., Offices 92 Randolph Street, Chicago, Ill., or Cedar Rapids, Iowa.

THE UNITED STATES LIFE INSURANCE COMPANY,
IN THE CITY OF NEW YORK,

261, 262, 263 Broadway.

ORGANIZED 1850

ASSETS, $4,827,176.52
SURPLUS, $820,000

EVERY APPROVED FORM OF POLICY ISSUED ON MOST FAVORABLE TERMS

ALL ENDOWMENT POLICIES AND APPROVED CLAIMS MATURING IN 1877

WILL BE DISCOUNTED AT 7%

ON PRESENTATION.

JAMES BUELL, - - PRESIDENT.
C. M. MARVIN, General Agent,
261 Broadway, N. Y.

NEW AMERICAN FARM BOOK.
Originally by RICHARD L. ALLEN.
Revised and greatly enlarged
By LEWIS F. ALLEN.

PRICE, POST-PAID, $2.50.

Allen's American Farm Book has been one of the standard farmers' hand-books for twenty years; it is still a valuable book, but not up to the times; and as its author, Mr. R. L. Allen, could not give time to its revision, this was undertaken by his brother, Hon. Lewis F. Allen, the distinguished farmer of Erie county, editor of the American Shorthorn Herd-Book. The work is greatly enlarged, and full of suggestions from the rich experience of its editor and reviser, and is called the *New* American Farm Book.

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.

IT IS BEING DONE ALL AROUND YOU.
YOUNG MEN! YOUNG WOMEN! Are you anxious to strike out for yourselves? Send for Catalogue of our publications and select one to sell. You can make from $50 to $200 per month clear. *Salaries paid after short trial.* Try once. Address AMERICAN PUBLISHING CO.,
Hartford, Ct.; Chicago, Ill.; Cincinnati, Ohio.

AGENTS WANTED for the NEW
FARMER'S BOOK.
Gives full information on all kinds of Farm-work, Drainage, Fertilizers, Rotation of Crops, and Farm-Stock. Includes a most valuable and practical treatise on House-building, and book of Legal forms and Laws for farmers. *The most valuable Farmer's Book ever published.* For full description and terms, address
J. C. McCURDY & CO., Philadelphia, Pa.

10 CENTS AND A 3-CENT STAMP for 12 beautiful Glass Cards; or 20 Snowflake, Marble, Repp and Damask; or 50 White or Tinted (15 colors), with your name neatly printed. SENT BY RETURN MAIL. None nicer in the world at any price. The largest variety of Visiting Cards on earth at my office. One says, "I know of more than fifty places to get cards and like yours best."—Another, "The *ne plus ultra* of visiting card printing."—"Neatest and best we ever saw."—"Never was so well suited before,"—are almost unanimous expressions.
TRY THEM AND YOU WILL SAY THE SAME.
W. C. CANNON, 713 Washington St.,
Boston, Mass.

40 Finely Printed Visiting Cards, (9 tints,) with your name on them all for only 10 cts.
STAR PRINTING CO., Northford, Conn.

50 Mixed Cards, Damask, Repp, Granite, Etc., with name printed on all for 10c. and stamp. Outfit, 25c. Address CLINTON BROS., Clintonville, Conn.

50 MIXED CARDS with name for 10 cts. & stamp. One pack (20 styles) Acquaintance cards 10 cts. Samples for stamp. M. DOWD & CO., Bristol, Conn.

YOUR NAME printed on 50 Mixed Cards for 10 cts. and stamp. You will like them.
NOVELTY CARD CO., Box 335, Wallingford, Conn.

50 MIXED CARDS, with name, for 10c. & stamp. Outfit 10c.
D. S. STEVENS, Jr., Northford, Ct.

50 BRISTOL CARDS, (9 tints), with name, and sample of Oriental Polish for 10 cents and stamp.
F. W. AUSTIN & CO., NORTH HAVEN, CONN.

50 MIXED CARDS, with name, 10c. and stamp. Agents' Outfit, 10c.
COE & CO., Bristol, Ct.

FIELD SPORTS.

Frank Forester's Field Sports.....$6.50
Embracing the Game of North America, Upland Shooting, Bay Shooting, Wild Sporting of the Wilderness, Forest, Prairie, and Mountain Sports, Bear Hunting, Turkey Shooting, etc. 13th edition, revised and illustrated. Two post-octavo volumes.

Frank Forester's Fish and Fishing..$3.50
Embracing a full illustrated description of the Game Fish of North America; Trout and Salmon Fishing; Shoal Water and Deep Sea Fishing; Lake and River Fishing; Trolling, Fly Fishing, etc. 100 engravings. 12th edition. Illustrated. One post-octavo volume.

Frank Forester's American Game in its Seasons.....$3.00
January: Caribou or American Reindeer.—February: Moose Deer, Wild Goose.—March: Mallard and Widgeon.—April: American Snipe, Striped Bass.—May: American Trout, Brent Goose.—June: Bay Snipe, Godwit, Salmon.—July: Woodcocks.—August: Summer Duck, Common Deer.—September: Teal.—October: Quail, Bittern.—November: Ruffed Grouse, Yellow Perch.—December: Canvas Back, Winter Duck. Fully Illustrated and Described.

Frank Forester's Complete Manual.$3.00
For Young Sportsmen, of Fowling, Fishing, and Field Sports. With directions for handling the Gun, the Rifle, and the Rod. Art of Shooting on the Wing. The Breaking, Management, and Hunting of the Dog. The varieties and habits of Game. River, Lake, and Sea Fishing. Illustrated. Post-octavo.

The Dead Shot.....$1.75
Or, Sportsman's Complete Guide; a Treatise on the use of the Gun, with Rudimentary and Finishing Lessons in the Art of Shooting Game of all kinds. By MARKSMAN. Cloth, 12mo.

The Crack Shot.....$1.75
Or, Young Rifleman's Complete Guide; being a Treatise on the use of the Rifle, with Lessons, including a full description of the latest improved breach-loading weapons; rules and regulations for Target Practice, and directions for Hunting Game. By EDWARD C. BARBER. Cloth, 12mo.

Either of the above books sent post-paid on receipt of price by
ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.

Vassar College,
For the Higher Education of Women,
POUGHKEEPSIE, NEW YORK.

J. H. RAYMOND, LL.D., President.

ADMISSION.
Applicants for admission to the College must be at least sixteen years of age, and must present satisfactory testimonials of character. None are received for a shorter period than till the close of the current collegiate year.

REGULAR STUDIES.
Mental and Moral Philosophy, The Greek, Latin, French, German and English Languages and their Literatures, Rhetoric, Mathematics, Astronomy, Physics, Natural History, Chemistry, Physiology, and Hygiene.

ART STUDIES.
Vocal, Piano and Organ Music, Painting and Drawing.
Every department of instruction is under the direction of an able Professor, assisted by competent Teachers.

THE COLLEGE HOME.
The College is situated two miles east of Poughkeepsie. Street-cars run regularly to and from the city. The Western Union Telegraph Company has an office in the College.
The College buildings are warmed by steam, lighted with gas, and supplied with an abundance of pure water. Bathing-rooms and other needful conveniences are amply provided.
All the students are members of the College family, and are subject to its regulations. The domestic and social life is under the supervision of the Lady Principal.
The grounds, embracing two hundred acres, with several miles of gravel walks, a flower-garden, lake, and the well-furnished Gymnasium, afford ample scope for healthful recreation.
A regular physician, residing in the College, devotes her entire time to the care of its health.
There are daily prayers in the Chapel, and a religious service and Bible classes every Sunday.

EXPENSES.
The uniform price of Board and Tuition for all students, whether regular, special, or preparatory, is $400 for the College year; of which $300 is payable in advance, and the balance on the first day of March following.
No extra charge is made, except for private lessons in art studies; for which the additional charges are as follows, payable three quarters in advance:

Pianoforte, two lessons a week and one practice period daily	$100	per annum.
Organ, two lessons a week and one practice period daily	100	"
Solo Singing, two lessons a week and one practice period daily	100	"
Thorough-Bass and Composition, two lessons a week	80	"
Drawing, Painting, or Modelling, two lessons a week	80	"

A nominal charge is made for medical attendance.

ENTRANCE EXAMINATIONS.
The entrance examinations for the year 1877-78 commence on Wednesday, September 19, 1877, and continue three days, from 9 a. m. until 5 p. m., with an intermission of one hour and a half for dinner.

CORRESPONDENCE.
Letters respecting departments of instruction, admission or dismission of students, etc., should be addressed to the President; Letters respecting Finances to Matthew Vassar, Jr., Treasurer; other business letters to William F. Forby, General Superintendent.
☞ CATALOGUES containing full particulars may be obtained by addressing WILLARD L. DEAN, Registrar, Poughkeepsie, N. Y.

FORT EDWARD COLLEGIATE INSTITUTE.
For adult students, to prepare for college, for business, for professional studies, or for life. Graduates' courses, for ladies and gentlemen, with Diplomas. Superb brick buildings. Fifteen Teachers. $172 per academic year for board, furnished rooms, fuel, washing, and common English. 24th year begins Sept. 6. For catalogues or rooms address
JOS. E. KING, D.D., Fort Edward, N. Y.

Herald of Health for 1877
and 4 back Nos. free $1.00. Samples 10 cents.
Eating for Strength, or how to feed ones self so as to maintain health, $1.00. Liver complaint, Headache and Nervous Dyspepsia, their Cause, Prevention, and Cure, by Hygiene, $1.00. All the above, $2.50. Circulars free. See Dec. *Agriculturist.*
WOOD & HOLBROOK,
13 & 15 Laight St., New York.

Geo. Gillott

STEEL PENS,
SOLD BY ALL DEALERS.
No. 91 JOHN ST., NEW YORK.
HENRY HOE, Sole Agent. JOSEPH GILLOTT & SONS.

DWYER'S HORSE BOOK.
SEATS AND SADDLES,
BITS AND BITTING,
AND
THE PREVENTION AND CURE OF RESTIVENESS IN HORSES.

By FRANCIS DWYER,
Major of Hussars in the Imperial Austrian Service.
ILLUSTRATED.

PRICE, POST-PAID, $2.00.

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.